

STATUTORY INSTRUMENT

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THE SIERRA LEONE CIVIL AVIATION AUTHORITY (PERSONNEL LICENCES)
REGULATIONS, 2016.

PART 2 - PERSONNEL LICENCES

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*THE CIVIL AVIATION, 2008
(ACT NO. 2 OF 2008)*

THE SIERRA LEONE CIVIL AVIATION, AUTHORITY(PERSONNEL LICENCES) REGULATIONS, 2016 Short title

In exercise of the powers conferred upon it by section 82 of the Civil Aviation Act 2008, the Authority hereby makes the following Regulations—

Introduction - PART 2 – PERSONNEL LICENCES

This Regulation addresses the licensing of personnel. Article 32 of the Chicago Convention requires Sierra Leone to issue certificates of competency and licences or validate such certificates or licences issued by other Contracting States to the pilot of every aircraft and to other members of the operating crew of every aircraft engaged in international navigation. The basis of this obligation is the goal of promoting and conducting safe and regular aircraft operations through the development and implementation of internationally acceptable certification and licensing processes.

The same process is extended to domestic operations, in Sierra Leone to ensure the overall safety of aircraft operation through unification of licensing requirements.

ICAO Annex 1, Personnel Licensing, presents the broad international specifications for personnel licensing agreed upon by Contracting States.

This part presents detailed requirements for the general rules of licensing and detailed requirements for the certification of airmen, pilots, non-pilot flight crewmembers, and airmen, such as mechanics, who are not flight crew. Part 2 also presents medical standards for the granting of licences and certification, and for the administration of medical examinations.

The licensing and medical standards are based upon ICAO Annex 1.

2.1 GENERAL

2.1.1 APPLICABILITY

Part 2 prescribes:

The requirements for issuing, renewal and re-issue of aviation personnel licences, ratings, authorizations and certificates;

- (a) The conditions under which those licences, ratings, authorizations and certificates are necessary; and
- (b) The privileges and limitations granted to the holders of those licences, ratings, authorizations and certificates.

2.1.2 DEFINITIONS

- (a) For the purpose of Part 2, the Sierra Leone Civil Aviation Act 2008 and Part 1, the following definitions shall apply:

- (1) **Accredited Medical Conclusion.** The conclusion reached by one or more medical experts acceptable to the Licensing Authority for the purposes of the case concerned, in consultation with flight operations or other experts as necessary.
- (2) **Advanced Flight Training Device.** A flight training device that has a cockpit that accurately replicates a specific make, model and type aircraft cockpit, and handling characteristics that accurately model the aircraft handling characteristics.

- (3) **Aeroplane.** A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.
- (4) **Aircraft.** Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.
- (5) **Aircraft Avionics.** A term designating any electronic device — including its electrical part — for use in an aircraft, including radio, automatic flight control and instrument systems.
- (6) **Aircraft — Category.** Classification of aircraft according to specified basic characteristics, e.g. aeroplane, helicopter, glider, free balloon.
- (7) **Aircraft Certificated for Single-Pilot Operation.** A type of aircraft which the State of Registry has determined, during the certification process, can be operated safely with a minimum crew of one pilot.
- (8) **Aircraft Certificated for Multi-Pilot Operation.** A type of aircraft which the State of Registry has determined, during the certification process, can be operated safely with a minimum crew of two pilots.

Note: During the certification process, a certificate of airworthiness designating an aircraft for single-pilot operations may be issued, based upon the Type Certificate issued by the State of Design, but the same aircraft may be operated by more than one pilot under certain conditions, such as use in commercial air transportation. (See CAR Part 8, 8.4.1.)

- (9) **Aircraft — Type of.** All aircraft of the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.
- (10) **Approved Maintenance Organization.** An organization approved by a Contracting State, in accordance with the requirements of Annex 6, Part I, Chapter 8 — Aeroplane Maintenance, to perform maintenance of aircraft or parts thereof and operating under supervision approved by that State.

Note. — Nothing in this definition is intended to preclude that the organization and its supervision be approved by more than one State.

- (11) **Approved training.** Training carried out under special curricula and supervision approved by a Contracting State.
- (12) **Balloon.** A non-power-driven lighter-than-air aircraft.

Note. — This definition applies to free balloons

- (13) **Calendar month.** A period of a month beginning and ending with the dates that are conventionally accepted as marking the beginning and end of a numbered year (as January 1 through January 31 in the Gregorian calendar).
- (14) **Calendar year.** A period of a year beginning and ending with the dates that are conventionally accepted as marking the beginning and end of a numbered year (as January 1 through December 31 in the Gregorian calendar).
- (15) **Certify as airworthy (to).** To certify that an aircraft or parts thereof comply with current airworthiness requirements after maintenance has been performed on the aircraft or parts thereof.
- (16) **Co-pilot.** A licensed pilot serving in any piloting capacity other than as pilot-in-command but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction.
- (17) **Complex aeroplane.** An aeroplane having retractable landing gear (except in seaplanes), flaps and a controllable propeller.
- (18) **Conversion.** Conversion is the action taken by Sierra Leone in issuing its own licences on the basis of a licences issued by another Contracting State for use on aircraft registered in Sierra Leone.
- (19) **Core curriculum.** A set of courses approved by the Authority, for use by an ATO and its satellite ATOs. The core curriculum consists of training that is required for licensing or aircraft ratings. It does not include training for tasks and circumstances unique to a particular user.

- (20) **Cross country.** A flight between a point of departure and a point of arrival following a pre-planned route using standard navigation procedures.
- (21) **Dual instruction time.** Flight time during which a person is receiving flight instruction from a properly authorized pilot on board the aircraft.
- (22) **Flight crew member.** A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.
- (23) **Flight plan.** Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.
- (24) **Flight procedures trainer.** See Synthetic flight trainer.
- (25) **Flight training equipment.** Flight Simulator Training Devices, flight training devices and aircraft
- (26) **Flight Simulator Training Device.** See Synthetic flight trainer.
- (27) **Flight time — aeroplanes.** The total time from the moment an aeroplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight.

Note. — Flight time as here defined is synonymous with the term “block to block” time or “chock to chock” time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.

- (28) **Flight time — helicopters.** The total time from the moment a helicopter’s rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped.
- (29) **Sierra Leone Civil Aviation Authority.** The Authority designated by Sierra Leone as responsible for the licensing of personnel.
- (30) **Glider.** A non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

- (31) **Glider flight time.** The total time occupied in flight, whether being towed or not, from the moment the glider first moves for the purpose of taking off until the moment it comes to rest at the end of the flight.
- (32) **Helicopter.** A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.
- (33) **Human performance.** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.
- (34) **High-performance aeroplane.** An aeroplane with an engine of more than 200 horsepower.
- (35) **Instrument flight time.** Time during which a pilot is piloting an aircraft solely by reference to instruments and without external reference points.
- (36) **Instrument ground time.** Time during which a pilot is practising, on the ground, simulated instrument flight in a synthetic flight trainer approved by the Authority.
- (37) **Instrument time.** Instrument flight time or instrument ground time.
- (38) **Licensing Section.** The Section designated by Sierra Leone as responsible for the licensing of personnel.

Note.—The Licensing Section is deemed to have been given the following responsibilities by Sierra Leone:

- (a) Assessment of an applicant's qualifications to hold a licences or rating;
- (b) Issue and endorsement of licences and ratings;
- (c) Designation and authorization of approved persons;
- (d) Approval of training courses;

- (e) Approval of the use of synthetic flight trainers and authorization for their use in gaining the experience or in demonstrating the skill required for the issue of a licences or rating; and
 - (f) Validation of licences issued by other ICAO Contracting States.
- (39) **Maintenance.** The performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.
 - (40) **Medical Assessment.** The evidence issued by an ICAO Contracting State that the licences holder meets specific requirements of medical fitness. It is issued following an evaluation by the Licensing Authority of the report submitted by the designated medical examiner who conducted the examination of the applicant for the licences.
 - (41) **Medical certificate.** The evidence issued by the Authority that the licences holder meets specific requirements of medical fitness. It is issued following an evaluation by the Authority of the report submitted by the designated medical examiner who conducted the examination of the applicant for the licences.
 - (42) **Night.** The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise, as may be prescribed by the appropriate authority.

Note. — Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon

- (43) **Operating position.** An air traffic control function performed within or directly associated with a control facility.
- (44) **Pilot-in-Command.** The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

- (45) **Pilot (to).** To manipulate the flight controls of an aircraft during flight time.
- (46) **Problematic use of substances.** The use of one or more psychoactive substances by aviation personnel in a way that:
- (i) Constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or
 - (ii) Causes or worsens an occupational, social, mental or physical problem or disorder.
- (47) **Progressive Inspection (Aircraft Maintenance Inspection).** An inspection that may be used in place of an annual or 100-hour inspection. It has the same scope as an annual inspection, but it may be performed in increments so the aircraft does not have to be out of service for a lengthy period of time.
- (48) **Psychoactive substances.** Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.
- (49) **Psychosis.** A mental disorder in which the individual has manifested delusions, hallucinations, grossly bizarre or disorganised behaviour or other commonly accepted symptoms of this condition; or the individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganised behaviour or other commonly accepted symptoms of this condition.
- (50) **Rated air traffic controller.** An air traffic controller holding a licences and valid ratings appropriate to the privileges to be exercised.
- (51) **Rating.** An authorization entered on or associated with a licences and forming part thereof, stating special conditions, privileges or limitations pertaining to such licences.
- (52) **Rendering (a licences) valid.** The action taken by a Contracting State, as an alternative to issuing its own licences, in accepting a licences issued by any other Contracting State as the equivalent of its own licences.

- (53) **Renewal of licences, rating, authorization or certificate.** The administrative action taken within the period of validity of a licences, rating, authorization or certificate that allows the holder to continue to exercise the privileges of a licences, rating, authorization or certificate for a further specified period consequent upon the fulfilment of specified requirements.
- (54) **Re-issue of a licences, rating, authorization or certificate.** The administrative action taken after a licences, rating, authorization or certificate has lapsed that re-issues the privileges of the licences, rating, authorization or certificate for a further specified period consequent upon the fulfilment of specified requirements.
- (55) **Route sector.** A flight comprising take off, departure, cruise of not less than 15 minutes, arrival, approach and landing phases.
- (56) **Sign a maintenance release (to).** To certify that maintenance work has been completed satisfactorily in accordance with the applicable Standards of airworthiness, by issuing the maintenance release referred to in Annex 6.
- (57) **Solo flight time.** Flight time during which a student pilot is the sole occupant of an aircraft.
- (58) **Substance.** Alcohol, sedatives, hypnotics, anxiolytics, hallucinogens, opioids, cannabis, inhalants, central nervous system stimulants such as cocaine, amphetamines and similarly acting sympathomimetic, phencyclidine or similarly acting arylcyclohexylamines, and other psychoactive drugs and chemicals.
- (59) **Substance abuse.** Refers to -
- (i) The use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous;

- (ii) A verified positive drug test result acquired under an anti-drug program or internal program of the Sierra Leone Government; or
- (iii) Misuse of a substance that the Authority, based on case history and qualified medical judgment relating to the substance involved, finds and makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or may reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the applicant unable to perform those duties or exercise those privileges.

- (60) **Substance dependence.** A condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by increased tolerance; manifestation of withdrawal symptoms; impaired control of use; or continued use despite damage to physical health or impairment of social, personal or occupational functioning.
- (61) **Synthetic flight trainer.** Any one of the following three types of apparatus in which flight conditions are simulated on the ground:

- (i) *A Flight Simulator Training Device*, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated.
- (ii) *A flight procedures trainer*, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;

- (iii) *A basic instrument flight trainer*, which is equipped with appropriate instruments and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

- (62) **Validation.** The action taken by Sierra Leone as an alternative to issuing its own licences, in accepting a licences issued by another Contracting State as the equivalent of its own licences for use on aircraft registered in Sierra Leone.

2.1.3 ABBREVIATIONS

- (a) The following abbreviations are used in Part 2:

- (1) A - Aeroplane
- (2) AIP - Aeronautical Information Publication
- (3) AME - Aviation Medical Examiner or Aircraft Maintenance Engineer
- (4) AMO - Approved Maintenance Organisation
- (5) AOC - Air Operator Certificate
- (6) ARS - Aviation Repair Specialist
- (7) ATO - Approved Training Organisation
- (8) ATCO - Air Traffic Controller (Note: abbreviation ICAO A446)
- (9) ATPL - Airline Transport Pilot Licences
- (10) cm - centimetre(s)
- (11) CAR(s) – Civil Aviation Regulation(s)
- (12) CAT II/III - Category II/III
- (13) CPL - Commercial Pilot Licences
- (14) CRM - Crew Resource Management
- (15) dB - decibels
- (16) FE - Flight Engineer
- (17) FI - Flight Instructor
- (18) IA - Inspection Authorisation
- (19) ICAO - International Civil Aviation Organisation
- (20) IFR - Instrument Flight Rules
- (21) ILS - Instrument Landing System
- (22) IR - Instrument Rating
- (23) IRE - Instrument Rating Examiner

- (24) H - Helicopter
- (25) ICAO - International Civil Aviation Organisation
- (26) MPA - Multi-pilot Aeroplane
- (27) MPH - Multi-pilot Helicopter
- (28) NOTAM - Notice to airmen
- (29) PIC - Pilot in Command
- (30) PPL - Private Pilot Licences
- (31) QSP - Qualified Service Pilot
- (32) RT - Radiotelephony
- (33) SPA - Single-pilot Aeroplane
- (34) SPH - Single-pilot Helicopter
- (35) VFR - Visual Flight Rules

2.2 GENERAL LICENSING REQUIREMENTS

2.2.1 GENERAL

- (a) A licences, rating, authorization and/or certificate will be issued, renewed or re-issued when the applicant complies with the requirements of Part 2.
- (b) **Privileges.** A licences and/or certificate holder is not permitted to exercise privileges other than those granted by the licences and/or certificate.
- (c) **Medical Fitness.** An applicant for a flight crew or air traffic controller licences shall hold a medical certificate issued in accordance with the provisions of this Part.

Implementing Standard: See IS 2.2.1 for detailed requirements for application for the issue, renewal and re-issue of licences, ratings, authorizations and certificates.

2.2.2 LICENCES, RATINGS, AUTHORIZATIONS AND CERTIFICATES

2.2.2.1 Licences

The following licences are issued under this Part to an applicant who satisfactorily

accomplishes the requirements in this Part for the licences sought:

- (d) Pilot licences:
 - (1) Private pilot licences (PPL);
 - (2) Commercial pilot licences (CPL);
 - (3) Airline Transport pilot licences (ATPL);
 - (4) Glider pilot licences; and
 - (5) Free balloon pilot licences
- (e) Flight engineer licences
- (f) Flight navigator licences
- (g) Aircraft maintenance engineer licences (AME):
- (h) Air traffic controller licences (ATCO)
- (i) Flight operations officer / Flight dispatcher licences
- (j) Aeronautical Station Operator licences.

Note: Flight radiotelephone operator

- (1) *Where the knowledge and skill of an applicant have been established as satisfactory in respect of the certification requirements for the radiotelephone operator's restricted certificate specified in the general radio regulations annexed to the International Telecommunication Convention and the applicant has met the requirements that are pertinent to the operation of the radiotelephone on board an aircraft, a licences already held by the applicant may be endorsed, or the applicant may be issued a separate licences as appropriate.*
- (2) *Skill and knowledge requirements on radiotelephony procedures and phraseology have been developed as an integral part of all pilot aeroplane and helicopter licences.*

2.2.2.2 Ratings

- (k) The following ratings are placed on a pilot licences when an applicant satisfactorily accomplishes the requirements in this Part for the rating sought:
 - (1) Category ratings in the following aircraft:
 - (i) Aeroplane
 - (ii) Helicopter
 - (iii) Glider
 - (iv) Free Balloon

- (2) Class ratings in the following aircraft:
- (i) Single-engine land - aeroplane
 - (ii) Single-engine sea - aeroplane
 - (iii) Multi-engine land - aeroplane
 - (iv) Multi-engine sea- aeroplane
 - (v) A class rating may be issued for those helicopters certificated for single-pilot operations and which have comparable handling, performance and other characteristics.

Note:

A class rating or endorsement for High Performance Aeroplanes (HPA) requires additional knowledge, if the applicant has not completed the ATPL(A) knowledge requirements.

(3) Type ratings in the following aircraft:

- (i) Each type of aircraft certificated for operation with a minimum crew of at least two pilots;
- (ii) Each type of helicopter certificated for single-pilot except where a class rating has been established under (a)(2)(v)
- (iii) Any aircraft considered necessary by the Authority

Note:

A type rating for High Performance Aeroplanes (HPA) requires additional knowledge, if the applicant has not completed the ATPL(A) knowledge requirements.

(4) Instrument ratings in the following aircraft:

- (i) Instrument – Aeroplane
- (ii) Instrument – Helicopter

(5) Instructor ratings:

- (i) Flight instructors / ground Instructors
- (ii) Instructors for additional class/type/instrument ratings

- (l) The following ratings are placed on a flight engineer's licences when an applicant satisfactorily accomplishes the requirements in this Part for the rating sought:

- (1) Type rating
- (2) Instructor rating

- (m) The following ratings are placed on an air traffic controller licences when an applicant satisfactorily accomplishes the requirements in this Part for the rating sought:

- (1) Aerodrome control rating
- (2) Approach control rating
- (3) Approach radar control rating
- (4) Approach precision radar control rating
- (5) Area control rating; and
- (6) Area radar control rating

- (n) The following ratings are placed on an Aircraft Maintenance Engineers licences when an applicant satisfactorily accomplishes the requirements in this Part for the rating sought:

- (1) Category A:
-Airframe and powerplant
- (2) Category B1:
-Airframe and powerplant
- (3) Category B2:
-Avionics
- (4) Category C:
-Base Maintenance

- (e) The Authority may place any rating on a pilot licences when issuing that licences, provided the rating reflects the appropriate category, class or aircraft type used to demonstrate skill and knowledge for its issuance.

A category rating shall not be endorsed on a licences when the category is included in the title of the licences itself.

2.2.2.3 AUTHORISATIONS

- (o) The following authorizations are issued when an applicant satisfactorily accomplishes the requirements in this Part for the authorisation sought:
- (1) Student pilot authorisation
 - (2) Examiner authorisation
 - (3) Special purpose pilot authorisation
 - (4) Special purpose flight engineer authorisation
 - (5) Aircraft Maintenance authorisation
 - (6) Non Destructive Testing (NDT) personnel authorisation
 - (7) Welders authorisation
 - (8) Aviation Medical Examiner authorisation
- (p) The following authorisations are placed on a licences when an applicant satisfactorily accomplishes the requirements in this Part for the authorization sought:
- (1) Category II pilot authorisation
 - (2) Category III pilot authorisation
 - (3) Inspection authorisation

2.2.2.4 CERTIFICATES

- (q) The following certificates are issued when an applicant satisfactorily accomplishes the requirements in this Part for the certificate sought:
- (1) Medical certificate Class 1 for CPL, ATPL, Flight engineer and Flight navigator licences
 - (2) Medical certificate Class 2 for PPL, Glider and Free balloon pilot licences
 - (3) Medical certificate Class 3 for Air traffic controller licences
 - (4) Validation certificates
 - (5) Cabin Crew Certificate

2.2.3 VALIDITY OF LICENCES, RATINGS, AUTHORISATIONS AND CERTIFICATES

- (a) The privileges granted by a licences, or by related ratings, may not be exercised unless the holder maintains competency and meets the requirements for recent experience of this Part.

- (b) Maintenance of competency shall be indicated in the airman's personal licences or record (e.g. logbook).
- (c) The maintenance of competency of flight crew members, engaged in commercial air transport operations, may be satisfactorily established by demonstration of skill during proficiency flight checks completed in accordance with Part 8.
- (d) The maximum validity period of a licences is 10 years. Within this period of 10 years and thereafter, the licences will be re-issued by the Authority:
- (1) For any administrative reason;
 - (2) At the discretion of the Authority when a rating is re-validated; or

Note: Valid ratings will be transferred to the new licences document by the Authority.

Note: The licences holder shall apply to the Authority for the re-issue of the licences and the application shall include the necessary documentation.

- (e) The validity period of the ratings, authorizations and medical certificates and the renewal/re-issue conditions are indicated in the relevant Subparts of Part 2.
- (f) Renewal of a licences will take place within the 10 years validity period after initial issue of a rating provided the ratings related to the licences and the medical certificate are valid.

2.2.4 VALIDATION AND CONVERSION OF FOREIGN LICENCES AND RATINGS

2.2.4.1 Validation of flight crew licences

- (a) A person who holds a current and valid pilot licences issued by another Contracting State in accordance with ICAO Annex 1, may apply for a validation of such licences for use on aircraft registered in Sierra Leone.
- (b) The Authority will verify the authenticity of the licences, ratings authorisations and the medical certificate with the state of licences issue.

- (c) A validation certificate with PPL privileges, based upon at least a PPL, will be issued provided:
- (1) The applicant for the validation certificate shall present to the Authority the foreign licences.
 - (2) The applicant for the validation certificate shall hold a current medical certificate issued under Part 2 or a current medical certificate issued by the Contracting State that issued the applicant's pilot licences provided that the foreign medical certificate meets the requirements of Part 2, relevant to the licences held.
 - (3) The validation certificate will be valid provided the foreign licences or in the case of a continuing licences, the rating/medical certificate remains valid.
- (d) A validation certificate with PPL/IR, CPL, CPL/IR, ATPL or FE privileges, based upon the relevant licences, will be issued provided the following requirements are met.
- (1) The applicant for the validation certificate shall present to the Authority the foreign licences and evidence of the experience required by presenting the record (e.g. logbook).
 - (2) The validation certificate will be valid for a maximum of six months provided the foreign licences or in the case of a continuing licences the rating/medical certificate remains valid.
 - (3) Ratings will only be validated together with the validation of a licences.
 - (4) The applicant for the validation certificate shall:
 - (i) hold a current medical certificate issued under Part 2 or a current medical certificate issued by the Contracting State that issued the applicant's pilot licences provided that the foreign medical certificate meets the requirements of Part 2, relevant to the licences held;

- (ii) complete a skill test for the relevant ratings in the licences that he or she wants to be validated relevant to the privileges of the licences held;-
- (iii) demonstrate to the satisfaction of the Authority the knowledge relevant to the licences to be validated of:

- (A) Air Law;
- (B) Aeronautical Weather codes;
- (C) Flight Performance and Planning; and
- (D) Human Performance;
- (e) Demonstrate a knowledge of the language of English, as required by 2.2.7.; and
- (f) Comply with the experience requirements set out in the table below:

Licences Experience Validation privileges

ATPL(A) > 1 500 hours as PIC in multi-pilot * certificated aeroplanes
 Commercial air transport in multi-pilot aeroplanes as PIC
 ATPL(H) >1 000 hours as PIC on multi-pilot helicopters Commercial air transport
 multi-pilot helicopters as PIC
 ATPL(A) or CPL(A)/IR with ATPL(A) knowledge > 500 hours as PIC or co-pilot
 on multi-pilot aeroplanes Commercial air transport in multi-pilot aeroplanes as
 co-pilot
 ATPL(H) or CPL(H)/IR with ATPL(H) knowledge > 500 hours as PIC or co-pilot
 on multi-pilot helicopters Commercial air transport in multi-pilot helicopters as
 co-pilot
 CPL(A)/IR > 1 000 hours as PIC in commercial air transport since gaining an IR
 Commercial air transport in single-pilot aeroplanes as PIC
 CPL(H)/IR > 1 000 hours as PIC in commercial air transport since gaining an IR
 Commercial air transport in single-pilot helicopters as PIC
 CPL(A) > 700 hours in aeroplanes other than gliders, including 200 hours in the
 activity role for which validation is sought, and 50 hours in that role in the last 12

months Activities in aeroplanes other than commercial air transport
 CPL(H) > 700 hours in helicopters including 200 hours in the activity role for which validation is sought, and 50 hours in that role in the last 12 months
 Activities in helicopters other than commercial air transport
 PPL(A)/IR > 100 hours PIC instrument flight time Private flights under IFR
 Flight engineer > 1 500 hours as flight engineer on aeroplanes in commercial air transport Commercial air transport in aeroplanes as flight engineer
 Flight engineer > 1 000 hours as flight engineer on aeroplanes in other than commercial air transport Other than commercial air transport in aeroplanes as flight engineer

2.2.4.1 Conversion of flight crew licences

- (a) **PPL:** A person who holds a current and valid pilot licences issued by another Contracting State in accordance with ICAO Annex 1, may apply for a conversion and be issued with a PPL for use on aircraft registered in Sierra Leone provided the following requirements are met. The holder shall:

- (1) present to the Authority the foreign licences and the record (e.g. logbook);
- (2) hold a current medical certificate;
- (3) complete a PPL skill test; and
- (4) Demonstrate to the satisfaction of the Authority the knowledge of Air Law.

- (b) The Authority will verify the authenticity licences, ratings, authorisations and the medical certificate with the state of licences issue.
- (c) PPL/IR, CPL, CPL/IR, ATPL and Flight Engineer licences, which have been validated in accordance with paragraph 2.2.4.1:

(1) The holder of a current and valid foreign PPL/IR, CPL, CPL/IR, ATPL or Flight Engineer licences, who as holder of a validation certificate issued under 2.2.4.1, has completed 200 flight hours in a Sierra Leone registered aircraft exercising the privileges granted by the validation certificate, which aircraft are operated by an operator established in Sierra Leone, may apply for a licences with the applicable ratings. The applicant for the conversion shall present to the Authority the foreign licences and evidence of the 200 flight hours by presenting the record (e.g. logbook).

(2) The applicant shall hold a medical certificate appropriate to the licences to be converted that also meets the requirements of Part 2. If the applicant's medical certificate does not meet the requirements of Part 2, the applicant shall obtain a medical certificate under Part 2.

- (d) Ratings listed on a person's foreign pilot licences that have been validated in accordance with paragraph 2.2.4.1, may be placed on that person's converted licences.

2.2.4.2 Validation and Conversion of flight crew licences by reliance upon the licensing system of another Contracting State

- (a) Notwithstanding paragraphs 2.2.4.1 and 2.2.4.2 the Authority may issue a validation certificate or a licences with the applicable ratings to the holder of a current and valid foreign licences, provided:

- (1) the licences is issued by another Contracting State;
- (2) the Authority is convinced that the licences has been issued on the basis of at least Part 2; and
- (3) there is an agreement between the Authority and the other Contracting State about recognition of licences and, if applicable, keeping the licences and ratings current and valid.

- (b) The applicant for the validation certificate or conversion shall present to the Authority the foreign licences and evidence of the currency of the licences by presenting the record (e.g. logbook).

- (c) The applicant shall hold a medical certificate relevant to the licences to be converted or validated, provided that the foreign medical certificate meets the requirements of Part 2, which medical certificate shall be issued under Part 2, medical requirements.
- (d) If applicable, the applicant shall pass a knowledge test on Air Law.

Implementing Standard: See IS 2.2.4.3 Appendix A, B and C for procedures for validation or conversion of flight crew licences.

2.2.4.3 Validation in case of leased, chartered or interchanged aircraft

- (a) The requirements stated in 2.2.4.1 shall not apply where aircraft, registered in Sierra Leone, are leased to, chartered by or interchanged by an operator of another Contracting State, provided that during the term of the lease the State of the Operator has accepted the responsibility for the technical and/or operational supervision in accordance with Art. 83 bis of the ICAO Convention.
- (b) The licences of the flight crew of the other Contracting State may be validated, provided that the privileges of the flight crew licences validation are restricted for use during the lease, charter or interchange period only on nominated aircraft in specified operations not involving a Sierra Leone operator, directly or indirectly through a wet lease or other commercial arrangement.

2.2.5 MILITARY PILOTS

The holder of a military pilot licences (or certificate) who meets the requirements of IS 2.2.6 may apply, on the basis of his or her military training, for:

- (a) a PPL or CPL;
- (b) a rating in the category and class of aircraft for which that military pilot is qualified;

- (c) an instrument rating with the appropriate category rating for which that military pilot is qualified; and
- (d) a type rating, if appropriate.

2.2.6 TRAINING AND TESTING REQUIREMENTS

2.2.6.1 Approved training

- (a) The Authority may provide for some reduction in the experience requirements for the issue of certain licences and ratings prescribed in this Part when training is conducted within an Approved Training Organization under special curricula approved by the Authority.
- (b) Approved training shall provide a level of competency at least equal to that provided by the minimum experience requirements for personnel not receiving such approved training.
- (c) Part 3 prescribes the requirements for certifying and administering Approved Training Organisations for conducting approved training.

2.2.6.2 Use of synthetic flight trainers

The use of a synthetic flight trainer for performing training, testing and checking for which a flight crew member is to receive credit, shall be approved by the Authority, which shall ensure that the synthetic flight trainer is appropriate to the task.

Note: See the Manual of Criteria for the Qualification of Flight Simulator Training Devices (ICAO Doc 9625).

2.2.6.3 Knowledge and Skill tests and checks: time, place, designated persons and format

- (a) Knowledge and Skill Tests and Checks prescribed by or under Part 2 are given at times and places, and by persons authorized and designated by the Authority.

- (b) The knowledge test will be performed in written or computer format, except for the knowledge test for an instructor rating or an additional instructor rating within the same aircraft category, which may be performed orally. In addition to the written knowledge test, candidates may be questioned orally during the skill test, as appropriate.

2.2.6.4 Knowledge and skill tests and checks: prerequisites and passing grades

- (a) An applicant for a knowledge test or a skill test shall have received any required endorsement as specified in this part.

Note: The endorsement requirements may differ between licences and will appear in each licences section as applicable.

- (b) An applicant for a knowledge or skill test must receive written authorization from the Authority to take the test.
- (c) An applicant shall show proper identification in the form of a Government issued identification document at the time of application that contains the applicant's: photograph, signature and date of birth.
- (d) The Authority will specify the minimum passing grades.
- (e) An applicant for a knowledge or skill test who fails that test may reapply for the test only after the applicant has received:
 - (1) The necessary training from an authorised instructor who has determined that the applicant is proficient to pass the test; and
 - (2) An endorsement from an authorised instructor who gave the applicant the additional training.

Implementing Standard: See IS 2.2.6. for requirements for testing

2.2.6.5 Reliance on Training and Testing in another Contracting State

- (a) The Authority may rely on the training and/or testing system administered by another Contracting State as the basis for its own written or practical test requirement for airman licences provided that the Authority has an agreement with the other Contracting State whose training and/or testing system is used.
- (b) The applicant shall apply for and receive written approval from the Authority prior to receiving training and/or testing in a system administered by another Contracting State.

2.2.7 LANGUAGE PROFICIENCY

- (a) Aeroplane and helicopter pilots, flight engineers, or flight navigators required to use the radio telephone aboard an aircraft, air traffic controllers and aeronautical station operators shall demonstrate the ability to speak and understand the language used for radio telephony communications.
- (b) Aeroplane and helicopter pilots, air traffic controllers and aeronautical station operators shall demonstrate the ability to speak and understand the language used for radiotelephony communications to the level specified in the language proficiency requirements.
- (c) The language proficiency of aeroplane and helicopter pilots, air traffic controllers and aeronautical station operators shall be formally evaluated at intervals in accordance with an individual's demonstrated proficiency level as follows:
 - (1) those demonstrating language proficiency at the Operational Level (Level 4) should be evaluated at intervals not greater than 3 years;
 - (2) those demonstrating language proficiency at the Extended Level (Level 5) should be evaluated at intervals not greater than 6 years; and

(3) those demonstrating language proficiency at the Expert Level (Level 6) should be exempt from further language evaluation.

(d) Implementing Standard IS 2.2.7 contains the detailed requirements for language proficiency.

Note: ICAO DOC 9835, *Manual on the Implementation of ICAO Language Proficiency Requirements*, is a guide to the implementation of the ICAO Language Proficiency Requirements.

2.2.8 RECORDING OF FLIGHT TIME

(a) Each person shall document and record the following time in a manner acceptable to the Authority:

(1) training and experience used to meet the requirements for a licences, rating and authorization of Part 2; and

(2) the experience required to show recent flight experience according to the requirements of Part 2.

Implementing Standard: see IS 2.2.8 for detailed recording requirements.

2.2.9 FORMAT OF THE LICENCES

(a) The licences format shall be in a form and manner prescribed by the Authority. The items required on the licences are indicated in IS 2.2.9.

2.2.10 SUSPENSION OR REVOCATION OF A LICENCES, RATING, AUTHORIZATION OR CERTIFICATE.

Note: See also Part 1.2.1.7.

2.2.10.1 Suspension of a licences, rating authorization or validation certificate

If, in accordance with Part 2, Section 37(5) of the Sierra Leone Civil Aviation Act 2008 the Authority determines that the interests of safety require that a licences, rating, authorization or certificate must be suspended, the Authority may act as follows:

(a) If the Authority discovers facts indicating either a lack of competency or lack of qualification, the Authority may, require an applicant for or the holder of any licences, rating, authorization, or validation certificate to retake all or part of the knowledge or practical tests required for any licences, rating, authorization, or validation certificate at issue, renewal or re-issue. The Authority may suspend the validity of any such licences, rating, authorization and/or validation certificate pending the results of such re-testing.

(b) A person whose licences, rating, authorization, or certificate has been amended, modified, suspended, or revoked shall be provided with notice and an opportunity to be heard in accordance with 1.2.7.3.

(c) After notifying the person involved, in writing, stating the reasons for such action, the Authority may also suspend the validity of any licences, rating, authorization and/or validation certificate in the following cases:

(1) during the investigation of an aircraft disaster or incident;

(2) in cases of proven misconduct, recklessness or excessive carelessness;

(3) if the holder has acted in contradiction to his or her privileges; and/or

(4) pending the investigation of a suspected violation of these regulations or the aviation law under which these regulations are effected.

(d) Once the suspension is effective, the person involved shall immediately cease exercising the privileges of the affected licences, certificate, rating, or authorization. The person involved shall surrender to the Authority all licences or validation certificates in his or her possession that are subject to the suspension within 8 days of receiving the notification of the order. If the person fails to surrender the documents under suspension, the Authority may revoke all such certificate(s) held by that person.

- (e) When a suspension is limited to one or more ratings mentioned on the licences or validation certificate, the Authority shall provide the person involved with a new licences or validation certificate omitting all ratings which are subject to the suspension.

(f) The Authority may cancel a suspension in the following cases:

(1) if person under suspension has taken and passed the knowledge or practical tests required for any licences, rating, or authorization at issue indicated in (a);

(2) if the person involved has gained the required additional experience; or

(3) by revocation of the licences, rating, authorization and/or validation certificate.

(g) Once the suspension has been cancelled, other than by revocation, the Authority shall issue the person involved a new licences or validation certificate.

2.2.10.2 Suspension of a medical certificate

- (a) In case of doubt concerning the medical fitness of the holder of a medical certificate the Authority may determine that the person involved shall again repeat a complete or partial medical examination, and may suspend the validity of that medical certificate until the repeat examination is completed with favourable results.
- (b) The validity of a medical certificate may also be suspended in case of a temporary rejection on medical grounds.
- (c) The person holding the medical certificate will be notified in writing of a suspension stating the reasons for that suspension.
- (d) The person holding the suspended medical certificate shall surrender the medical certificate in his or her possession to the Authority within 8 days after the date of receiving the notification.

(e) In cases in which the medical fitness of the person involved allows it, the Authority may provide the person with a suspended medical certificate of a particular class with a new medical certificate of a lower class.

(f) A suspension may be lifted if the medical examination intended in (a) has been passed satisfactorily. If a suspension is lifted, the person involved shall receive a new medical certificate unless the medical certificate was revoked.

2.2.10.3 Revocation of licences, ratings authorizations or certificates

(a) A licences, rating, authorization or certificate shall be revoked if the holder has lost the skills for exercising the privileges mentioned in the document or fails to meet the appropriate medical standards as shown by the results of a medical examination or a test.

(b) A licences, rating, authorization and/or certificate may be revoked if the holder has made a statement contrary to the truth in obtaining or maintaining that licences, rating authorization or certificate, or has provided incorrect data at a medical examination and/or test required for the issue, maintenance or renewal of the licences, rating, authorization and certificate.

(c) A licences, rating, authorization or certificate shall be revoked in case of proven misconduct, recklessness or excessive carelessness. The holder of the licences will be notified in writing of the revocation with the reasons therefore.

(d) A person who has had a licences or certificate revoked shall be obliged to hand over to the Authority all the licences or certificates in his or her possession applicable to the revocation within 8 days after the date of receiving notification from the Authority.

- (e) The person who has been denied the privilege to manipulate the controls of an aircraft by judgement of a court, shall be equally obliged to hand over to the Authority all licences and certificates in his or her possession within 8 days after he or she has taken cognisance of the judgement or after it can be reasonably assumed that he or she has taken cognisance thereof.

2.3 PILOT LICENCES, CATEGORIES, RATINGS AND AUTHORIZATIONS

2.3.1 GENERAL

2.3.1.1 Applicability

This Section prescribes the requirements for the issue, renewal and re-issue, if applicable, of pilot licences, ratings and authorizations.

2.3.1.2 General rule concerning pilot licences, ratings and Authorisations

- (a) An applicant shall, before being issued with any pilot licences, rating or authorisation, meet such requirements in respect of age, knowledge, experience, flight instruction, skill, medical fitness and language proficiency as are specified for that licences, rating or authorisation.
- (b) A person shall not act either as pilot-in-command or as co-pilot of an aircraft in any of the categories unless that person is the holder of a pilot licences issued in accordance with the provisions of Part 2.
- (c) An applicant shall for renewal or re-issue of a licences, rating or authorization meet the requirements as are specified for that licences, rating or authorization.

2.3.1.3 Authority to act as a flight crew member

- (a) A person shall not act as a flight crew member of an aircraft registered in Sierra Leone unless a valid licences or a validation certificate is held showing compliance with the specifications of this Part and appropriate to the duties to be performed by that person.

- (b) No person may act as the PIC or co-pilot of an aircraft unless that person holds the appropriate category, class and type rating for the aircraft to be flown.

Note: During a skill test, the applicant acts as PIC but the safety pilot will intervene in safety situations.

2.3.1.4 Crediting of flight time

- (a) A student pilot or the holder of a pilot licences shall be entitled to be credited in full with all solo, dual instruction and pilot-in-command flight time towards the total flight time required for the initial issue of a pilot licences or the issue of a higher grade of pilot licences.
- (b) The holder of a pilot licences, when acting as co-pilot of an aircraft required to be operated with a co-pilot shall be entitled to be credited with not more than 50 per cent of the co-pilot flight time towards the total flight time required for a higher grade of pilot licences.
- (c) The holder of a pilot licences, when acting as co-pilot performing under the supervision of the pilot-in-command the functions and duties of a pilot-in-command, shall be entitled to be credited in full with this flight time towards the total flight time required for a higher grade of pilot licences.

2.3.1.5 Curtailment of privileges of pilots who have attained their 65th birthday

- (a) No person who holds a pilot licences issued under this Part shall serve as a pilot on a civil aircraft of Sierra Leone registry engaged in international commercial air transport operations if the person has reached his or her 65th birthday.
- (b) For multi-crew public transport operations, where a pilot is operating over 60 years of age, the other pilot must be under the age of 60.

2.3.1.6 Recent experience requirements

- (a) A pilot shall not operate an aircraft carrying passengers as pilot-in-command or co-pilot unless he or she has carried out at least three take-offs and three landings as pilot-flying in an aircraft of the same type/class or a Flight Simulator Training Device Training Device of the aircraft type/class to be used, in the preceding 90 days.
- (b) The holder of a licences that does not include an instrument rating shall not act as pilot-in-command of an aircraft carrying passengers at night unless he or she has carried out at least three take-offs and three landings at night during the previous 90 days.
- (c) Each person shall document and record the experience required to show recent flight experience.

2.3.2 CATEGORY, CLASS AND TYPE RATINGS AND CATEGORY II/III AUTHORIZATIONS

2.3.2.1 General

- (a) The holder of a pilot licences shall not be permitted to act as pilot-in-command or as co-pilot of an aeroplane or helicopter unless the holder has received authorization as follows:
 - (1) The appropriate class rating specified in this Part; or
 - (2) A type rating when required in accordance with this Part; and
 - (3) An authorization when required in accordance with this Part.
- (b) The applicant shall meet the appropriate requirements of this Part for the aircraft rating or authorization sought.

- (c) When an applicant demonstrates skill and knowledge for the initial issue or re-issue of a pilot licences, the category and ratings appropriate to the class or type of aircraft used in the demonstration will be entered on the licences.
- (d) For the purpose of training, testing or specific special purpose non-revenue, non-passenger carrying flights, special authorization may be provided in writing to the licences holder by the Authority in place of issuing the class or type rating in accordance with (a). This authorization shall be limited in validity to the time needed to complete the specific flight.

2.3.2.2 Category Rating

- (a) The category of aircraft shall be endorsed on the licences as a rating.
- (b) Any additional category rating endorsed on a pilot licences shall indicate the level of licensing privileges at which the category rating is granted.
- (c) The holder of a pilot licences seeking additional category ratings shall meet the requirements of this Part appropriate to the privileges for which the category rating is sought.

2.3.2.3 Class Ratings – Aeroplane and Helicopter

- (a) Flight instruction.
 - (1) The applicant for a class rating shall have completed the flight instruction for the class rating on the subjects listed in IS 2.3.3.2 or 2.3.3.3 Appendix B (for aeroplane) or IS 2.3.3.6 or 2.3.3.7 Appendix B (for helicopter), as applicable.
 - (2) Where applicable the flight instruction shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

(b) Skill.

(1) The applicant for a class rating shall:

- (i) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test;
- (ii) Pass the required skill test on the subjects listed in IS 2.3.3.2 or 2.3.3.3 Appendix B (for aeroplane) or IS 2.3.3.6 or 2.3.3.7 Appendix B (for helicopter), as applicable.

(2) Where applicable the skill test shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

(c) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a class rating are to act as a pilot on the class of aircraft specified in the rating.

(d) **Validity:** Subject to compliance with the requirements specified in this Part, the validity period of:

- (1) a multi-engine class rating is 1 year;
- (2) a single-engine class rating is 2 years.

(e) Renewal.

(1) For the renewal of a single-engine class rating the pilot shall:

- (i) within the preceding 24 months, complete a proficiency check on areas of operation listed in IS 2.3.3.2, Appendix B for PPL or 2.3.3.3 Appendix B for CPL (for aeroplane) or IS 2.3.3.6 Appendix B for PPL or 2.3.3.7 Appendix B for CPL (for helicopter), as applicable; or
- (ii) Have completed 12 hours flight time within the 12 months preceding the expiry date.

(2) For the renewal of a multi-engine class rating the pilot shall:

(i) Within the preceding 12 months, complete a proficiency check on the subjects listed in IS 2.3.3.2 Appendix B for PPL or IS 2.3.3.3 Appendix B for CPL (for aeroplane) or IS 2.3.3.6 Appendix B for PPL or 2.3.3.7 Appendix B for CPL (for helicopter), as applicable; and

(ii) Have completed 10 route sectors within the 3 months preceding the expiry date.

(3) Where applicable the proficiency check shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

(4) If a pilot takes the proficiency check required in this section in the month before or the month after the month in which it is due, the pilot is considered to have taken it in the month in which it was due for the purpose of computing when the next proficiency check is due.

(f) **Re-issue.** If the class rating has expired the applicant shall:

(1) Have received refresher training from an authorised instructor with an endorsement that the person is prepared for the required skill test; and

(2) Pass the required skill test on the areas of operation listed in IS 2.3.3.2 Appendix B for PPL or IS 2.3.3.3 Appendix B for CPL (for aeroplane) or IS 2.3.3.6 Appendix B for PPL or IS 2.3.3.7 Appendix B for CPL (for helicopter), as applicable.

(3) Where applicable the skill test shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

2.3.2.4 Type ratings - Aeroplane and Helicopter

(a) **Knowledge.** The applicant for a type rating shall have completed the theoretical knowledge instruction and demonstrated in a test the relevant knowledge subjects as listed in IS 2.3.2.4 Appendix A.

(b) **Experience.**

- (1) An applicant for a type rating shall:
- (i) Have at least 100 hours as pilot-in-command applicable to the category of aircraft;
 - (ii) Where applicable, have an instrument rating applicable to the category of aircraft;
 - (iii) Have completed a CRM course as listed in IS 2.3.2.4 Appendix B; and
 - (iv) Have demonstrated in a test, the ATPL knowledge on the basis of the requirements listed in 2.3.3.4(b) (for aeroplane) or 2.3.3.8(b) (for helicopter), as applicable.

(c) **Flight instruction.**

(1) The applicant for a type rating shall have completed the flight instruction for the type rating:

- (i) for single-pilot aircraft: on the subjects listed in IS 2.3.3.2 or IS 2.3.3.3 Appendix B (for aeroplane) or IS 2.3.3.6 or IS 2.3.3.7 Appendix B for helicopter, as applicable; and
- (ii) for multi-pilot aircraft: on the subjects listed in IS 2.3.3.4 Appendix B (for aeroplane) or 2.3.3.8 Appendix B (for helicopter), as applicable.

(2) Where applicable the flight instruction shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

(d) **Skill.**

(1) The applicant for a type rating shall:

(i) have received an endorsement from an authorised instructor who certifies that the person is prepared for the required skill test;

(ii) pass the required skill test:

- (A) for single pilot aircraft: on the subjects listed in IS 2.3.3.2 or IS 2.3.3.3 Appendix B (for aeroplane) or IS 2.3.3.6 or IS 2.3.3.7 Appendix B for helicopter, as applicable; and
- (B) for multi-pilot aircraft on the subjects listed in IS 2.3.3.4 (for aeroplane) or IS 2.3.3.8 Appendix B (for helicopter), as applicable.

(2) Where applicable the skill test shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

(e) **Privileges.**

(1) Subject to compliance with the requirements specified in this Part, the privileges of the holder of a type rating are to act as a pilot on the type of aircraft specified in the rating.

(2) When the skill test for a type rating has been performed under VFR the type rating will be issued limiting the privileges to VFR flight and such limitation will be endorsed on the rating.

(f) **Validity.** Subject to compliance with the requirements in this Part, the validity period of a type rating is 1 year.

(g) **Renewal.** For the renewal of a type rating the pilot shall:

(1) within the preceding 6 months, complete a proficiency check:

- (i) for single pilot aircraft: on the subjects listed in IS 2.3.3.2 or IS 2.3.3.3 Appendix B (for aeroplane) or IS 2.3.3.6 or IS 2.3.3.7 Appendix B for helicopter, as applicable; and

- (ii) for multi-pilot aircraft on the subjects listed in IS 2.3.3.4 Appendix B (for aeroplane) or IS 2.3.3.8 Appendix B (for helicopter), as applicable.

(2) Have completed 10 route sectors within the 3 months preceding the expiry date.

(3) Where applicable the proficiency check shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

(4) If a pilot takes the proficiency check required in this section in the month before or the month after the month in which it is due, the pilot is considered to have taken it in the month in which it was due for the purpose of computing when the next proficiency check is due.

(h) **Re-issue.** If the type rating has been expired the applicant shall:

(1) have received refresher training from an authorized instructor with an endorsement that the person is prepared for the required skill test; and

(2) pass the required skill test:

(i) for single pilot aircraft: on the subjects listed in IS 2.3.3.2 or IS 2.3.3.3 Appendix B (for aeroplane) or IS 2.3.3.6 or IS 2.3.3.7 Appendix B (for helicopter), as applicable; and

(ii) for multi-pilot aircraft on the subjects listed in IS 2.3.3.4 Appendix B (for aeroplane) or IS 2.3.3.8 Appendix B (for helicopter), as applicable.

(3) Where applicable the skill test shall include instrument procedures, including instrument approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure.

2.3.2.5 Category II and III Authorization

(a) **General.**

(1) A person, not flying under Part 8, may not act as pilot of an aircraft during Category II or III operations unless that person holds a Category II or III pilot authorization for that category, class or type of aircraft.

(2) The applicant for a Category II or III pilot authorization shall:

(i) hold a pilot licences with an instrument rating or an ATPL; and

(ii) hold a category and class or type rating for the aircraft for which the authorization is sought.

(b) **Knowledge.** The applicant for a Category II or III pilot authorization shall have completed the theoretical knowledge instruction and demonstrated in a test the knowledge subjects as listed in IS 2.3.2.4 Appendix A (Section 6).

(c) **Experience.** The applicant for a Category II or III pilot authorization shall have at least:

(1) 50 hours of night flight time as PIC;

(2) 75 hours of instrument time under actual or simulated instrument conditions; and

(3) 250 hours of cross-country flight time as PIC.

(i) **Flight Instruction.** The applicant for a Category II or III pilot authorization shall have completed the flight instruction on the subjects listed in IS 2.3.3.4 Appendix B (Section 10) for aeroplane or IS 2.3.3.8 Appendix B (Section 9) for helicopter, as applicable.

(j) **Skill.** The applicant for a Category II or III pilot authorization shall pass a skill test including the subjects listed in IS 2.3.3.4 Appendix B (Section 10) for aeroplane or IS 2.3.3.8 Appendix B (Section 9) for helicopter, as applicable.

- (k) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of a Category II and III authorization is 6 months.
- (l) **Renewal.** For the renewal of a Category II or III pilot authorization the pilot shall have completed a proficiency check including the subjects listed in IS 2.3.3.4 Appendix B (Section 10) for aeroplane or IS 2.3.3.8 Appendix B (Section 9) for helicopter, as applicable.
- (m) **Re-issue.** If the Category II or the Category III has been expired the applicant shall:
 - (1) have received refresher training from an authorized instructor with an endorsement that the person is prepared for the required skill test; and
 - (2) pass the required skill test on the subjects listed in IS 2.3.3.4 Appendix B (Section 10) for aeroplane or IS 2.3.3.8 Appendix B (Section 9) for helicopter, as applicable.

2.3.3 STUDENT PILOTS, PILOT LICENCES, INSTRUMENT AND INSTRUCTOR RATINGS

2.3.2.5 STUDENT PILOTS

- (a) **Age.** The applicant for a student pilot authorization shall be not less than 16 years of age.
- (b) **Knowledge.** The applicant for a student pilot authorization shall receive and log ground training from an authorized instructor on the following subjects:
 - (1) applicable sections of Part 2 and Part 8;
 - (2) airspace rules and procedures for the airport where the student will perform solo flight; and
 - (3) flight characteristics and operation limitations for the make and model of aircraft to be flown.

(c) **Pre-solo Flight Instruction.** Prior to conducting a solo flight, a student pilot shall have:

- (1) received and logged flight training for the manoeuvres and procedures as listed in IS 2.3.3.1.
 - (2) demonstrated satisfactory proficiency and safety, as judged by an authorized instructor, on the manoeuvres and procedures as listed in IS 2.3.3.1.
- (d) **Solo flight requirements:** A student pilot shall not fly solo:
- (1) unless holding at least a Class 2 Medical Certificate; and
 - (2) with the authority of an authorized flight instructor.

2.3.2.6 Private Pilot licences – Aeroplane

- (a) **Age.** The applicant for a PPL(A) shall be not less than 17 years of age.
- (b) **Knowledge.** The applicant for a PPL(A) shall
 - (1) receive and log ground training from an authorized instructor on the following subjects:
 - (i) Air law: rules and regulations relevant to the holder of a PPL(A); rules of the air; appropriate air traffic services practices and procedures
 - (ii) Aircraft general knowledge:
 - (A) principles of operation of aeroplane powerplants, systems and instruments;
 - (B) operating limitations of aeroplanes and powerplants; relevant operational information from the flight manual or other appropriate document;

- (iii) Flight performance and planning:
 - (A) effects of loading and mass distribution on flight characteristics; mass and balance calculations;
 - (B) use and practical application of take-off, landing and other performance data;
 - (C) pre-flight and enroute flight planning appropriate to private operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; position reporting procedures; altimeter setting procedures; operations in areas of high-density traffic;
 - (iv) Human performance: human performance relevant to the PPL(A)
 - (v) Meteorology: application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry
 - (vi) Navigation: practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;
 - (vii) Operational procedures:
 - (A) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
 - (B) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;
 - (viii) Principles of flight:
 - (A) principles of flight relating to aeroplanes;
 - (ix) Radiotelephony:

- (A) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure as listed in IS 2.3.3.2 Appendix A;
 - (2) have received an endorsement for the knowledge test from an authorised instructor who:
 - (i) conducted the training on the knowledge subjects;
 - (ii) certifies that the person is prepared for the required knowledge test; and
 - (3) pass the required knowledge test on the knowledge areas listed in IS 2.3.3.2 Appendix A.
 - (a) **Experience**
 - (1) The applicant for a PPL(A) shall have completed not less than 40 hours of flight time as pilot of aeroplanes, a total of 5 hours may have been completed in a Flight Simulator Training Device or flight procedures trainer.
 - (2) The applicant shall have completed in aeroplanes not less than 10 hours of solo flight time under the supervision of an authorized flight instructor, including 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 270 km (150 NM) in the course of which full-stop landings at two different aerodromes shall be made.
 - (3) The holder of pilot licences in other categories may be credited with 10 hours of the total flight time as pilot-in-command towards a PPL(A).
 - (a) **Flight Instruction.**
 - (1) The applicant for a PPL(A) shall receive and log not less than 20 hours of dual instruction from an authorized instructor on the subjects listed in IS 2.3.3.2 Appendix B. These 20 hours may include 5 hours completed in a Flight Simulator Training Device or flight procedures trainer. The 20 hours of dual instruction shall include at least 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 270 km (150 NM) in the course of which full-stop landings at two different aerodromes shall be made.

(2) The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the private pilot:

- (i) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- (ii) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- (iii) control of the aeroplane by external visual reference;
- (iv) flight at critically slow airspeeds; recognition of, and recovery from, incipient and full stalls;
- (v) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- (vi) normal and cross-wind take-offs and landings;
- (vii) maximum performance (short field and obstacle clearance take-offs, short-field landings);
- (viii) flight by reference solely to instruments, including the completion of a level 180 degrees turn;
- (ix) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids;
- (x) emergency operations, including simulated aeroplane equipment malfunctions; and
- (xi) operations to, from and transmitting controlled aerodromes, compliance with air traffic services procedures; radiotelephony procedures and phraseology as further specified in IS 2.3.3.2 Appendix B.

(3) If the privileges of the PPL(A) are to be exercised at night, the applicant shall have received 4 hours dual instruction in aeroplanes in night flying, including take-offs, landings and 1 hour of navigation.

(a) **Skill.**

The applicant for a PPL (A) shall:

(1) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

(2) have demonstrated by passing a skill test the ability to perform as pilot-in-command of an aeroplane, the areas of operation described in IS 2.3.3.2 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of a PPL(A), and to:

- (i) operate the aeroplane within its limitations;
- (ii) complete all manoeuvres with smoothness and accuracy;
- (iii) exercise good judgement and airmanship;
- (iv) apply aeronautical knowledge; and
- (i) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(b) **Medical Fitness.** The applicant for a PPL(A) shall hold a current Class 2 Medical Certificate.

(c) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a PPL(A) shall be to act, but not for remuneration, as pilot-in-command or co-pilot of any aeroplane engaged in non-revenue flights.

- (d) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years.

Note: For renewal of the licences see 2.2.3.

Implementing Standard: See IS 2.3.3.2 Appendix A and B for detailed requirements for a PPL(A).

2.3.2.7 Commercial Pilot Licences - Aeroplane

- (a) **Age.** The applicant for a CPL(A) shall be not less than 18 years of age.
- (b) **Knowledge.** The applicant for a CPL(A) shall

(1) receive and log ground training from an authorized instructor on the following subjects:

- (i) Air law: rules and regulations relevant to the holder of a CPL(A); rules of the air; appropriate air traffic services practices and procedures;
- (ii) Aircraft general knowledge:
- (A) principles of operation and functioning of aeroplane powerplants, systems and instruments;
- (B) operating limitations of appropriate aeroplanes and powerplants; relevant operational information from the flight manual or other appropriate document;
- (C) use and serviceability checks of equipment and systems of appropriate aeroplanes;
- (D) maintenance procedures for airframes, systems and powerplants of appropriate aeroplanes;
- (iii) Flight performance and planning:

- (A) effects of loading and mass distribution on aeroplane handling, flight characteristics and performance; mass and balance calculations;
- (B) use and practical application of take-off, landing and other performance data;
- (C) pre-flight and enroute flight planning appropriate to operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures;
- (iv) Human performance: human performance relevant to the CPL(A);
- (v) Meteorology:
- (A) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- (B) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the moment of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, enroute and landing conditions; hazardous weather avoidance;
- (vi) Navigation: air navigation, including the use of aeronautical charts, instruments and navigation aids; understanding of the principles and characteristics of appropriate navigation systems; operation of air borne equipment;
- (vii) Operation procedures:
- (A) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;

- (B) appropriate precautionary and emergency procedures;
 - (C) operational procedures for carriage of freight; potential hazards associated with dangerous goods;
 - (D) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aeroplanes;
- (viii) Principles of flight: principles of flight relating to aeroplanes;
- (ix) Radiotelephony
- :
- (A) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure;
 - (B) as further specified in IS 2.3.3.3 Appendix A.

(2) Have received an endorsement for the knowledge test from an authorized instructor who:

- (i) conducted the training on the knowledge subjects;
- (ii) certifies that the person is prepared for the required knowledge test; and

(3) Pass the required knowledge test on the knowledge subjects listed in IS 2.3.3.3 Appendix B.

(c) ***Experience.***

(1) The applicant for a CPL(A) shall have completed not less than 200 hours of flight time, or 150 hours if completed during a CAA approved training course provided for in an Approved Training Organisation under Part 3, as a pilot of aeroplanes, of which 10 hours may have been completed in a Flight Simulator Training Device or flight procedures trainer.

(2) The applicant shall have completed in aeroplanes not less than:

- (i) 100 hours as pilot-in-command or, in the case of a course of approved training, 70 hours as pilot-in-command;
- (ii) 20 hours of cross-country flight time as pilot-in-command including a cross-country flight totalling not less than 540 km (300 NM) in the course of which full-stop landings at two different aerodromes shall be made;
- (iii) 10 hours of instrument instruction time of which not more than 5 hours may be instrument ground time;
- (iv) if the privileges of the licences are to be exercised at night, 5 hours of night flight time including 5 take-offs and 5 landings as pilot-in-command.

(3) The holder of a pilot licences in another category may be credited towards the 200 hours of flight time as follows:

- (i) 10 hours as PIC in a category other than helicopters; or
- (ii) 30 hours as pilot-in-command holding a PPL(H) on helicopters; or
- (iii) 100 hours as pilot-in-command holding a CPL(H) on helicopters.

(4) The applicant for a CPL(A) shall hold a PPL(A) issued under this Part.

(d) ***Flight Instruction.***

(1) The applicant for a CPL(A) shall receive and log not less than 25 hours of dual instruction from an authorized instructor. These 25 hours may include 5 hours completed in a Flight Simulator Training Device training device or flight procedures trainer.

(2) The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot:

- (i) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- (ii) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- (iii) control of the aeroplane by external visual reference;
- (iv) flight at critically slow airspeeds; recognition of, and recovery from, incipient and full stalls;
- (v) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- (vi) normal and cross-wind take-offs and landings;
- (vii) maximum performance (short field and obstacle clearance take-offs, short-field landings);
- (viii) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;
- (ix) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures
- (x) abnormal and emergency procedures and manoeuvres; and
- (xi) operations to, from and transmitting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology as further specified in IS 2.3.3.3 Appendix B.

(1) If the privileges of the CPL(A) are to be exercised at night, the applicant shall have received 4 hours dual instruction in aeroplanes in night flying, including take-offs, landings and 1 hour of navigation.

(e) **Skill.** The applicant for a CPL(A) shall:

(1) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

(2) shall have demonstrated by passing a skill test the ability to perform as pilot-in-command of an aeroplane, the areas of operation described in IS 2.3.3.3 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of a CPL(A), and to

- (i) operate the aeroplane within its limitations;
- (ii) complete all manoeuvres with smoothness and accuracy;
- (i) exercise good judgement and airmanship;
- (ii) apply aeronautical knowledge; and
- (iii) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(f) **Medical Fitness.** The applicant for a CPL(A) shall hold a current Class 1 Medical Certificate.

(g) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a CPL(A) shall be:

- (1) to exercise all the privileges of the holder of a PPL(A);
- (2) to act as pilot-in-command in any aeroplane engaged in operations other than commercial air transportation;

(3) to act as pilot-in-command in commercial air transportation in any aeroplane certificated for single-pilot operation; and
 (4) to act as co-pilot in commercial air transportation in aeroplanes required to be operated with a co-pilot.

- (h) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.

2.3.2.8 Airline Transport Pilot Licences - Aeroplane

- (a) **Age.** The applicant for a ATPL(A) shall be not less than 21 years of age.
- (b) **Knowledge.** The applicant for an ATPL(A) shall

(1) receive and log ground training from an authorized instructor on the following subjects:

- (i) Air law: rules and regulations relevant to the holder of an ATPL(A); rules of the air; appropriate air traffic services practices and procedures;
- (ii) Aircraft general knowledge:
- (A) general characteristics and limitations of electrical, hydraulic, pressurization and other aeroplane systems; flight control systems, including autopilot and stability augmentation;
- (B) principles of operation, handling procedures and operating limitations of aeroplane powerplants; effects of atmospheric conditions on engine performance; relevant operational information from the flight manual or other appropriate document;
- (C) operating procedures and limitations of appropriate aeroplanes; effects of atmospheric conditions on aeroplane performance;

- (D) use and serviceability checks of equipment and systems of appropriate aeroplanes;
- (E) flight instruments; compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;
- (F) maintenance procedures for airframes, systems and powerplants of appropriate aeroplanes;
- (iii) Flight performance and planning:
- (A) effects of loading and mass distribution on aeroplane handling, flight characteristics and performance; mass and balance calculations;
- (B) use and practical application of take-off, landing and other performance data, including procedures for cruise control;
- (C) pre-flight and enroute operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures
- (iv) Human performance: human performance relevant to the ATPL(A)
- (v) Meteorology:
- (A) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- (B) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the moment of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, enroute and landing conditions;

- (C) causes, recognition and effects of engine and airframe icing; frontal zone penetration procedures; hazardous weather avoidance;
- (vi) Navigation:
- (A) air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
 - (B) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aeroplanes;
 - (C) use, accuracy and reliability of navigation systems used in departure, enroute, approach and landing phases of flight; identification of radio navigation aids;
 - (D) principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment;
- (vii) Operation procedures:
- (A) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, enroute, descent and approach;
 - (B) precautionary and emergency procedures; safety practices associated with flight under IFR;
 - (C) operational procedures for carriage of freight and dangerous goods;
 - (D) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aeroplanes;

- (viii) Principles of flight: principles of flight relating to aeroplanes; subsonic aerodynamics; compressibility effects, manoeuvre boundary limits, wing design characteristics, effects of supplementary lift and drag devices; relationships between lift, drag and thrust at various airspeeds and in different flight configuration;
- (ix) Radiotelephony: radiotelephony procedures and phraseology; action to be taken in case of communication failure; as further specified in IS 2.3.3.4 Appendix A

(c) ***Experience.***

(1) completed not less than 1500 hours of flight time as a pilot of aeroplanes of which a maximum of 100 hours may have been completed in a Flight Simulator Training Device. The applicant shall have completed in aeroplanes not less than:

- (i) 250 hours, either as pilot-in-command, or made up by not less than 100 hours as pilot-in-command and the necessary additional flight time as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command; provided that the method of supervision employed is acceptable to the Authority;
- (ii) 200 hours of cross-country flight time, of which not less than 100 hours shall be as pilot-in-command or as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, provided that the method of supervision employed is acceptable to the Authority;
- (iii) 75 hours of instrument time, of which not more than 30 hours may be instrument ground time; and
- (iv) 100 hours of night flight as pilot-in-command or as co-pilot.

- (A) Holders of a CPL(H) will be credited with 50% of their helicopter flight time as pilot-in-command towards the flight time required in (1).
- (B) The applicant shall have completed a CRM course on the subjects listed in IS 2.3.2.4 Appendix B.
- (C) The applicant for an ATPL(A) shall be the holder of a CPL(A) with instrument and multi-engine rating issued under this Part.
- (d) **Flight Instruction.** The applicant for an ATPL(A) shall have received the dual flight instruction required for the issue of the CPL(A) and the IR.
- (e) **Skill.** The applicant for an ATPL(A) shall:

(1) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

(2) have demonstrated by passing a skill test the ability to perform, as pilot-in-command of a multi-engine aeroplane required to be operated with a co-pilot, the following procedures and manoeuvres:

- (i) pre-flight procedures, including the preparation of the operational flight plan and filing of the air traffic services flight plan;
- (ii) normal flight procedures and manoeuvres during all phases of flight;
- (iii) procedures and manoeuvres for IFR operations under normal, abnormal and emergency conditions, including simulated engine failure, and covering at least the following:
 - (A) transition to instrument flight on take-off;
 - (B) standard instrument departures and arrivals;

- (C) enroute IFR procedures and navigation;
- (D) holding procedures;
- (E) instrument approaches to specified minima;
- (F) missed approach procedures
- (G) landings from instrument approaches;
 - (iv) abnormal and emergency procedures and manoeuvres related to failures and malfunctions of equipment, such as powerplant, systems and airframe; and
 - (v) procedures for crew incapacitation and crew coordination, including allocation of pilot tasks, crew cooperation and use of checklists.

(3) have demonstrated by passing a skill test the ability to perform the areas of operation described in IS 2.3.3.4 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of an ATPL(A), and to:

- (i) operate the aeroplane within its limitations;
- (ii) complete all manoeuvres with smoothness and accuracy;
- (iii) exercise good judgement and airmanship;
- (iv) apply aeronautical knowledge; and
- (v) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never in doubt;
- (vi) understand and apply crew coordination and incapacitation procedures; and
- (vii) communicate effectively with the other flight crew members

- (f) **Medical fitness.** The applicant for an ATPL(A) shall hold a current Class 1 Medical Certificate.
- (g) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of an ATPL(A) shall be:

(1) to exercise all the privileges of the holder of a PPL(A) and CPL(A) and of an IR(A); and

(2) to act as pilot-in-command and co-pilot in aeroplanes in air transportation.

- (h) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.

2.3.2.9 Instrument Rating - Aeroplane

- (a) **General.** The holder of a pilot licences shall not act either as pilot-in-command or as co-pilot of an aircraft under instrument flight rules (IFR) unless such holder has received proper authorization from the Authority. Proper authorization shall comprise an instrument rating appropriate to the aircraft category.
- (b) **Knowledge.** The applicant for an IR(A) shall:

(1) receive and log ground training from an authorized instructor on the following subjects

- (i) Air law: rules and regulations relevant to flight under IFR; related air traffic services practices and procedures;
- (ii) Aircraft general knowledge:
 - (A) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aeroplanes under IFR and in instrument meteorological conditions; use and limitations of autopilot;

- (B) compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;

(iii) Flight performance and planning

- (A) pre-flight preparations and checks appropriate to flight under IFR;

- (B) operational flight planning; preparation and filing of air traffic services flight plans under IFR; altimeter setting procedures;

(iv) Human performance: human performance relevant to instrument flight in aeroplanes;

(v) Meteorology:

- (A) application of aeronautical meteorology; interpretation and use of reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information; altimetry;

- (B) causes, recognition and effects of engine and airframe icing; frontal zone penetration procedures; hazardous weather avoidance;

(vi) Navigation:

- (A) practical air navigation using radio navigation aids;

- (B) use, accuracy and reliability of navigation systems used in departure, enroute, approach and landing phases of flight; identification of radio navigation aids;

(vii) Operation procedures

- (A) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, enroute, descent and approach;
- (B) precautionary and emergency procedures; safety practices associated with flight under IFR;
- (viii) Radiotelephony:
 - (A) radiotelephony procedures and phraseology as applied to aircraft operations under IFR; action to be taken in case of communication failure;
 - (B) as listed in IS 2.3.3.5 Appendix A.

(2) have received an endorsement for the knowledge test from an authorized instructor who:

- (i) conducted the training on the knowledge subjects;
- (ii) certifies that the person is prepared for the required knowledge test; and

(3) pass the required knowledge test on the knowledge subjects listed in IS 2.3.3.5 Appendix A.

(c) **Experience.**

- (1) The applicant for an IR(A) shall hold at least a PPL(A).
- (2) The applicant shall have completed not less than:
 - (i) 50 hours of cross-country flight time as pilot-in-command of aircraft in categories acceptable to the Authority, of which not less than 10 hours shall be in aeroplanes; and
 - (ii) 40 hours of instrument time in aeroplanes or helicopters of which not more than 20 hours, or 30 hours where a Flight Simulator Training Device is used, may be

instrument ground time. The ground time shall be under the supervision of an authorized instructor.

(d) **Flight Instruction.**

(1) The applicant for an IR(A) shall have not less than 10 hours of the instrument flight time required in (c)(2)(ii) while receiving and logging dual instruction in aeroplanes from an authorized flight instructor, on the subjects listed in IS 2.3.3.5 Appendix B.

(2) The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the holder of an instrument rating:

- (i) pre-flight procedures, including the use of the flight manual or equivalent document, and appropriate air traffic services documents in the preparation of an IFR flight plan;
- (ii) pre-flight inspection, use of checklists, taxiing and pre-take-off checks;
- (iii) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

- (A) transition to instrument flight on take-off;
- (B) standard instrument departures and arrivals;
- (C) enroute IFR procedures and navigation;
- (D) holding procedures;
- (E) instrument approaches to specified minima;
- (F) missed approach procedures;
- (G) landings from instrument approaches;

- (iv) in flight manoeuvres and particular flight characteristics.

(3) If the privileges of the instrument rating are to be exercised on multi-engine aeroplanes, the applicant shall have received dual instrument flight instruction in such an aeroplane from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in the operation of the aeroplane solely by reference to instruments with one engine inoperative or simulated inoperative.

(e) **Skill.** The applicant for an IR(A) shall:

(1) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

(2) have demonstrated by passing a skill test the ability to perform the areas of operation described in IS 2.3.3.5 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of an IR(A), and to:

- (i) operate the aeroplane within its limitations;
- (ii) complete all manoeuvres with smoothness and accuracy;
- (iii) exercise good judgement and airmanship;
- (iv) apply aeronautical knowledge; and
- (v) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt;
- (vi) understand and apply crew coordination and incapacitation procedures; and
- (vii) communicate effectively with the other flight crew members

(3) have demonstrated by passing a skill test the ability to operate multi-engine aeroplanes solely by reference to instruments with one engine inoperative, or simulated inoperative, described in IS 2.3.3.5 Appendix B, if the privileges of the instrument rating are to be exercised on such aeroplanes.

(f) **Medical fitness.** Applicants who hold a PPL shall have established their hearing acuity on the basis of compliance with the hearing requirements for the issue of a Class 1 Medical Certificate.

(g) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of an IR(A) shall be to pilot aeroplanes under IFR.

(h) Before exercising the privileges on multi-engine aeroplanes the holder of the rating shall have complied with the requirements of (e)(3).

(i) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of an IR(A) is 1 year.

(j) **Renewal:**

(1) For the renewal of a single-engine instrument rating the applicant shall within the preceding 12 months, complete proficiency check on the subjects listed in IS 2.3.3.5 Appendix B.

(2) For the renewal of a multi-engine instrument rating the applicant shall within the preceding 12 months, complete a proficiency check on the subjects listed in IS 2.3.3.5 Appendix B.

(3) If a pilot takes the proficiency check required in this section in the month before or the month after the month in which it is due, the pilot is considered to have taken it in the month in which it was due for the purpose of computing when the next proficiency check is due.

(k) **Re-issue.** If the instrument rating has been expired the applicant shall:

(1) have received refresher training from an authorized instructor with an endorsement that the person is prepared for the required skill test; and

(2) pass the required skill test on the subjects listed in IS 2.3.3.5 Appendix B.

2.3.2.10 Private Pilot Licences - Helicopter

2.3.4.1.1 Age. The applicant for a PPL(H) shall be not less than 17 years of age.

2.3.4.1.2 Knowledge. The applicant for an PPL(H) shall:

2.3.4.1.2.1 receive and log ground training from an authorized instructor on the following subjects:

2.3.4.1.2.1.1 Air law: rules and regulations relevant to the holder of a PPL(H); rules of the air; appropriate air traffic services practices and procedures

2.3.4.1.2.1.2 Aircraft general knowledge:

2.3.4.1.2.1.2.1 principles of operation of helicopter powerplants, transmission (power-trains), systems and instruments;

2.3.4.1.2.1.2.2 operating limitations of helicopters and powerplants; relevant operational information from the flight manual;

2.3.4.1.2.1.3 Flight performance and planning:

2.3.4.1.2.1.3.1 effects of loading and mass distribution on flight characteristics; mass and balance calculations;

2.3.4.1.2.1.3.2 use and practical application of take-off, landing and other performance data;

2.3.4.1.2.1.3.3 pre-flight and enroute flight planning appropriate to private operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; position reporting procedures; altimeter setting procedures; operations in areas of high-density traffic;

2.3.4.1.2.1.4 Human performance: human performance relevant to the PPL(H);

2.3.4.1.2.1.5 Meteorology: application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

2.3.4.1.2.1.6 Navigation: practical aspects of air navigation and dead reckoning techniques; use of aeronautical charts;

2.3.4.1.2.1.7 Operational procedures:

2.3.4.1.2.1.7.1 use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;

2.3.4.1.2.1.7.2 appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather and wake turbulence; settling with power, ground resonance, roll-over and other operating hazards;

2.3.4.1.2.1.8 Principles of flight: principles of flight relating to helicopters;

2.3.4.1.2.1.9 Radiotelephony:

2.3.4.1.2.1.9.1 radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure;

2.3.4.1.2.1.9.2 as further specified in IS 2.3.3.6 Appendix A.

2.3.4.1.2.2 have received an endorsement for the knowledge test from an authorized instructor who:

2.3.4.1.2.2.1 conducted the training on the knowledge subjects

2.3.4.1.2.2.2 certifies that the person is prepared for the required knowledge test; and

2.3.4.1.2.3 pass the required knowledge test on the knowledge areas listed in IS

- 2.3.3.6 Appendix A
- 2.3.4.1.3 *Experience.*
- 2.3.4.1.3.1 The applicant for a PPL(H) shall have completed not less than 40 hours of flight time as pilot of aeroplanes, a total of 5 hours may have been completed in a Flight Simulator Training Device or flight procedures trainer.
- 2.3.4.1.3.2 The applicant shall have completed in helicopter not less than 10 hours of solo flight time under the supervision of an authorized flight instructor, including 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 180 km (100 NM) in the course of which landings at two different points shall be made.
- 2.3.4.1.3.3 The holder of pilot licences in other categories may be credited with 10 hours of the total flight time as pilot-in-command towards a PPL(H).
- 2.3.4.1.4 *Flight Instruction.*
- 2.3.4.1.4.1 The applicant for a PPL(H) shall receive and log not less than 20 hours of dual instruction from an authorized instructor on the subjects listed in IS 2.3.3.6 Appendix B. These 20 hours may include 5 hours completed in a Flight Simulator Training Device or flight procedures trainer. The 20 hours of dual instruction shall include at least 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 180 km (100 NM) in the course of which landings at two different points shall be made.
- 2.3.4.1.4.2 The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the private pilot:
- 2.3.4.1.4.2.1 pre-flight operations, including mass and balance determination, helicopter inspection and servicing;
- 2.3.4.1.4.2.2 aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- 2.3.4.1.4.2.3 control of the helicopter by external visual reference;

- 2.3.4.1.4.2.4 recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- 2.3.4.1.4.2.5 ground manoeuvring and run-ups; hovering; take-offs and landings normal, out of wind and sloping ground;
- 2.3.4.1.4.2.6 take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- 2.3.4.1.4.2.7 cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids including a flight of at least one hour;
- 2.3.4.1.4.2.8 emergency operations, including simulated helicopter equipment malfunctions; autorotative approach and landing; and
- 2.3.4.1.4.2.9 operations to, from and transmitting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology
- 2.3.4.1.4.2.10 as further specified in IS 2.3.3.6 Appendix B.
- 2.3.4.1.4.3 If the privileges of the PPL(H) are to be exercised at night, the applicant shall have received 4 hours dual instruction in helicopters in night flying, including take-offs, landings and 1 hour of navigation.
- 2.3.4.1.5 Skill.** The applicant for a PPL(H) shall
- 2.3.4.1.5.1 have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and
- 2.3.4.1.5.2 have demonstrated by passing a skill test the ability to perform as pilot-in-command of a helicopter, the areas of operation described in IS 2.3.3.6 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of a PPL(A), and to
- 2.3.4.1.5.2.1 operate the helicopter within its limitations;
- 2.3.4.1.5.2.2 complete all manoeuvres with smoothness and accuracy;

- 2.3.4.1.5.2.3 exercise good judgement and airmanship;
- 2.3.4.1.5.2.4 apply aeronautical knowledge; and
- 2.3.4.1.5.2.5 maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.
- 2.3.4.1.6** *Medical fitness.* The applicant for a PPL(H) shall hold a current Class 2 Medical Certificate.
- 2.3.4.1.7** *Privileges.* Subject to compliance with the requirements specified in this Part, the privileges of the holder of a PPL(H) shall be to act, but not for remuneration, as pilot-in-command or co-pilot of any helicopter engaged in non-revenue flights.
- 2.3.4.1.8** *Validity.* Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.
- 2.3.3.7 Commercial Pilot Licences - Helicopter
- (a) *Age.* The applicant for a CPL(H) shall be not less than 18 years of age.
- (b) *Knowledge.* The applicant for an CPL(H) shall:
- (1) receive and log ground training from an authorized instructor on the following subjects:
- (i) Air law: rules and regulations relevant to the holder of a CPL(H); rules of the air; appropriate air traffic services practices and procedures
- (ii) Aircraft general knowledge
- (A) principles of operation and functioning of helicopter powerplants, transmission (power-trains) systems and instruments;

- (B) operating limitations of appropriate helicopters and powerplants; relevant operational information from the flight manual;
- (C) use and serviceability checks of equipment and systems of appropriate helicopters;
- (D) maintenance procedures for airframes, systems and powerplants of appropriate helicopters;
- (iii) Flight performance and planning:
- (A) effects of loading and mass distribution, including external loads, on helicopter handling, flight characteristics and performance; mass and balance calculations;
- (B) use and practical application of take-off, landing and other performance data;
- (C) pre-flight and enroute flight planning appropriate to operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures;
- (iv) Human performance: human performance relevant to the CPL(H);
- (v) Meteorology:
- (A) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- (B) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the moment of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, enroute and landing conditions; hazardous weather avoidance;

- (vi) Navigation: air navigation, including the use of aeronautical charts, instruments and navigation aids; understanding of the principles and characteristics of appropriate navigation systems; operation of air borne equipment
 - (vii) Operation procedures
 - (A) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
 - (B) appropriate precautionary and emergency procedures; settling with power, ground resonance, roll-over and other operating hazards;
 - (C) operational procedures for carriage of freight, including external loads; potential hazards associated with dangerous goods;
 - (D) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from helicopters;
 - (viii) Principles of flight: principles of flight relating to helicopters;
 - (ix) Radiotelephony:
 - (A) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure;
 - (B) as further specified in IS 2.3.3.7 Appendix A.
- (2) have received an endorsement for the knowledge test from an authorized instructor who:
- (i) conducted the training on the knowledge subjects;
 - (ii) certifies that the person is prepared for the required knowledge test; and

(3) pass the required knowledge test on the knowledge subjects listed in IS 2.3.3.7 Appendix A.

(c) **Experience.**

(1) The applicant for a CPL(H) licences shall have completed not less than 150 hours of flight time, or 100 hours if completed during an integrated course of approved training provided for in an Approved Training Organisation under Part 3, as a pilot of helicopters, of which 10 hours may have been completed in a Flight Simulator Training Device or flight procedures trainer.

(2) The applicant shall have completed in helicopters not less than:

- (i) 35 hours as pilot-in-command;
- (ii) 10 hours of cross-country flight time as pilot-in-command including a cross-country flight in the course of which full-stop landings at two different points shall be made;
- (iii) 10 hours of instrument instruction time of which not more than 5 hours may be instrument ground time;
- (iv) if the privileges of the licences are to be exercised at night, 5 hours of night flight time including 5 take-offs and 5 landings as pilot-in-command.

(3) The holder of a pilot licences in the helicopter category may be credited towards the 150 hours of flight time as follows:

- (i) 20 hours as pilot-in-command holding a PPL(A) in aeroplanes; or
- (ii) 50 hours as pilot-in-command holding a CPL(A) in aeroplanes.

(4) The applicant for a CPL(H) shall hold a PPL(H) under this Part.

(d) **Flight Instruction.**

(1) The applicant for a CPL(H) shall have received and log not less than 30 hours of dual instruction in helicopters from an authorized flight instructor under Part 3 on the subjects listed in IS 2.3.3.7 Appendix B.

(2) The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot:

- (i) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;
- (ii) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- (iii) control of the helicopter by external visual reference;
- (iv) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- (v) ground manoeuvring and run-ups; hovering; take-offs and landings – normal, out of wind and sloping ground; steep approaches;
- (vi) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- (vii) hovering out of ground effect; operations with external load, if applicable; flight at high altitude;
- (viii) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;
- (ix) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures

(x) abnormal and emergency procedures, including simulated helicopter equipment malfunctions, autorotative approach and landing; and

(xi) operations to, from and transmitting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology

(xii) as further specified in IS 2.3.3.7 Appendix B.

(3) If the privileges of the licences are to be exercised at night, the applicant shall have received dual instruction in helicopters in night flying, including take-offs, landings and navigation.

(e) **Skill.** The applicant for a CPL(H) shall:

(1) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

(2) have demonstrated by passing a skill test the ability to perform as pilot-in-command of an helicopter, the areas of operation described in IS 2.3.3.7 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of a CPL(H), and to

- (i) operate the helicopter within its limitations;
- (ii) complete all manoeuvres with smoothness and accuracy;
- (iii) exercise good judgement and airmanship;
- (iv) apply aeronautical knowledge; and
- (v) maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(f) **Medical fitness.** The applicant for a CPL(H) shall hold a current Class 1 Medical Certificate.

(g) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a CPL(H) shall be:

- (1) to exercise all the privileges of the holder of a PPL(H);
- (2) to act as pilot-in-command in any helicopter engaged in operations other than commercial air transportation;
- (3) to act as pilot-in-command in commercial air transportation in any helicopter certificated for single-pilot operation; and
- (4) to act as co-pilot in commercial air transportation in helicopters required to be operated with a co-pilot.

(h) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.

2.3.3.8 Airline Transport Pilot Licences - Helicopter

(a) **Age.** The applicant for a ATPL(H) shall be not less than 21 years of age.

(b) **Knowledge.** The applicant for an ATPL(H) shall:

- (1) receive and log ground training from an authorized instructor on the following subjects
 - (i) Air law: rules and regulations relevant to the holder of an ATPL(H); rules of the air; appropriate air traffic services practices and procedures
 - (ii) Aircraft general knowledge:
 - (A) general characteristics and limitations of electrical, hydraulic and other helicopter systems; flight control systems, including autopilot and stability augmentation;

- (B) principles of operation, handling procedures and operating limitations of helicopter powerplants; transmission (power-trains); effects of atmospheric conditions on helicopter performance; relevant operational information from the flight manual;
- (C) operating procedures and limitations of appropriate helicopters; effects of atmospheric conditions on helicopter performance; relevant operational information from the flight manual;
- (D) use and serviceability checks of equipment and systems of appropriate helicopters;
- (E) flight instruments; compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;
- (F) maintenance procedures for airframes, systems and powerplants of appropriate helicopters;
 - (iii) Flight performance and planning:
 - (A) effects of loading and mass distribution, including external loads, on helicopter handling, flight characteristics and performance; mass and balance calculations;
 - (B) use and practical application of take-off, landing and other performance data, including procedures for cruise control;
 - (C) pre-flight and enroute operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures
 - (iv) Human performance: human performance relevant to the ATPL(H)
 - (v) Meteorology;

- (A) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- (B) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the moment of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, enroute and landing conditions;
- (C) causes, recognition and effects of engine, airframe and rotor icing; hazardous weather avoidance;
 - (vi) Navigation:
 - (A) air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
 - (B) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of helicopters;
 - (C) use, accuracy and reliability of navigation systems; identification of radio navigation aids;
 - (D) principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment;
 - (vii) Operation procedures:
 - (A) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
 - (B) precautionary and emergency procedures; settling with power, ground resonance, retreating blade stall, dynamic roll-over and other operating hazards; safety practices associated with flight under VFR;

- (C) operational procedures for carriage of freight, including external load, and dangerous goods;
- (D) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from helicopters;
 - (viii) Principles of flight: principles of flight relating to helicopters;
 - (ix) Radiotelephony:
 - (A) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure
 - (B) as further specified in IS 2.3.3.8 Appendix A.
- (2) have received an endorsement for the knowledge test from an authorized instructor who:
 - (i) conducted the training on the knowledge subjects;
 - (ii) certifies that the person is prepared for the required knowledge test; and
- (3) pass the required knowledge test on the knowledge subjects listed in IS 2.3.3.8 Appendix A.
 - (c) **Experience.**
 - (1) The applicant for an ATPL(H) shall have completed not less than 1000 hours of flight time as a pilot of helicopters of which a maximum of 100 hours may have been completed in a Flight Simulator Training Device. The applicant shall have completed in helicopters not less than:
 - (i) 250 hours, either as pilot-in-command, or made up by not less than 100 hours as pilot-in-command and the necessary additional flight time as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command; provided that the method of supervision employed is acceptable to the Authority;

- (ii) 200 hours of cross-country flight time, of which not less than 100 hours shall be as pilot-in-command or as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, provided that the method of supervision employed is acceptable to the Authority;
- (iii) 30 hours of instrument time, of which not more than 10 hours may be instrument ground time; and
- (iv) 50 hours of night flight as pilot-in-command or as co-pilot.

(2) Holders of a CPL(A) will be credited with 50% of their aeroplane flight time as pilot-in-command towards the flight time required in (1).

(3) The applicant shall have completed a CRM course on the subjects listed in IS 2.3.2.4 Appendix B.

(4) The applicant for an ATPL(H) shall be the holder of a CPL(H) issued under this Part.

(d) **Flight Instruction.** The applicant for an ATPL(H) shall have received the dual flight instruction required for the issue of the CPL(H).

(e) **Skill.** The applicant for a ATPL(H) shall:

(1) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

(2) have demonstrated by passing a skill test the ability to perform, as pilot-in-command of a helicopter required to be operated with a co-pilot, the following procedures and manoeuvres:

- (i) pre-flight procedures, including the preparation of the operational flight plan and filing of the air traffic services flight plan;

- (ii) normal flight procedures and manoeuvres during all phases of flight;
- (iii) if the IR is going to be part of the ATPL(H): procedures and manoeuvres for IFR operations under normal, abnormal and emergency conditions, including simulated engine failure, and covering at least the following:

- (A) transition to instrument flight on take-off;
- (B) standard instrument departures and arrivals;
- (C) enroute IFR procedures and navigation;
- (D) holding procedures;
- (E) instrument approaches to specified minima;
- (F) missed approach procedures;
- (G) landings from instrument approaches;

(iv) abnormal and emergency procedures and manoeuvres related to failures and malfunctions of equipment, such as powerplant, systems and airframe; and

(v) procedures for crew incapacitation and crew coordination, including allocation of pilot tasks, crew cooperation and use of checklists.

(3) have demonstrated by passing a skill test the ability to perform the areas of operation described in IS 2.3.3.8 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of an ATPL(H), and to:

- (i) operate the helicopter within its limitations;
- (ii) complete all manoeuvres with smoothness and accuracy;

- (iii) exercise good judgement and airmanship;
- (iv) apply aeronautical knowledge;
- (v) maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt;
- (vi) understand and apply crew coordination and incapacitation procedures; and
- (vii) communicate effectively with the other flight crew members

(f) **Medical fitness.** The applicant for a ATPL(H) shall hold a current Class 1 Medical Certificate.

(g) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of an ATPL(H) shall be:

- (1) to exercise all the privileges of the holder of a PPL(H) and CPL(H); and
- (2) to act as pilot-in-command and co-pilot in helicopters in air transportation.

(h) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.

2.3.3.9 Instrument Rating - Helicopter

(a) **General.** The holder of a pilot licences shall not act either as pilot-in-command or as co-pilot of an aircraft under instrument flight rules (IFR) unless such holder has received proper authorization from the Authority. Proper authorization shall comprise an instrument rating appropriate to the aircraft category.

(b) **Knowledge.** The applicant for an IR(H) shall:

- (1) receive and log ground training from an authorized instructor on the following subjects

(i) Air law: rules and regulations relevant to flight under IFR; related air traffic services practices and procedures;

(ii) Aircraft general knowledge:

(A) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of helicopters under IFR and in instrument meteorological conditions; use and limitations of autopilot;

(B) compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;

(iii) Flight performance and planning:

(A) pre-flight preparations and checks appropriate to flight under IFR;

(B) operational flight planning; preparation and filing of air traffic services flight plans under IFR; altimeter setting procedures;

(iv) Human performance: human performance relevant to instrument flight in helicopters;

(v) Meteorology:

(A) application of aeronautical meteorology; interpretation and use of reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information; altimetry;

(B) causes, recognition and effects of engine and airframe icing; frontal zone penetration procedures; hazardous weather avoidance;

(vi) Navigation:

- (A) practical air navigation using radio navigation aids;
- (B) use, accuracy and reliability of navigation systems used in departure, enroute, approach and landing phases of flight; identification of radio navigation aids;

(vii) Operation procedures:

- (A) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, enroute, descent and approach;
- (B) precautionary and emergency procedures; safety practices associated with flight under IFR;

(viii) Radiotelephony:

- (A) radiotelephony procedures and phraseology as applied to aircraft operations under IFR; action to be taken in case of communication failure;
- (B) as further specified in IS 2.3.3.5 Appendix A.

(2) have received an endorsement for the knowledge test from an authorized instructor who:

- (i) conducted the training on the knowledge subjects;
- (ii) certifies that the person is prepared for the required knowledge test; and

(3) pass the required knowledge test on the knowledge subjects listed in IS 2.3.3.5 Appendix A.

(c) **Experience.**

(1) The applicant for an IR(H) shall hold a PPL(H), a CPL(H) or an ATPL(H).

(2) The applicant shall have completed not less than:

- (i) 50 hours of cross-country flight time as pilot-in-command of aircraft in categories acceptable to the Authority, of which not less than 10 hours shall be in helicopters; and
- (ii) 40 hours of instrument time in helicopters or aeroplanes of which not more than 20 hours, or 30 hours where a Flight Simulator Training Device is used, may be instrument ground time. The ground time shall be under the supervision of an authorized instructor.

(d) **Flight Instruction.**

(3) The applicant for an IR(H) shall have gained not less than 10 hours of the instrument flight time required in (c)(2)(ii) while receiving and logging dual instruction in helicopters from an authorized flight instructor, on the subjects listed in IS 2.3.3.5 Appendix B.

(4) The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the holder of an instrument rating:

- (i) pre-flight procedures, including the use of the flight manual or equivalent document, and appropriate air traffic services documents in the preparation of an IFR flight plan;
- (ii) pre-flight inspection, use of checklists, taxiing and pre-take-off checks;
- (iii) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

(A) transition to instrument flight on take-off;

- (B) standard instrument departures and arrivals;
 - (C) enroute IFR procedures and navigation;
 - (D) holding procedures;
 - (E) instrument approaches to specified minima;
 - (F) missed approach procedures;
 - (G) landings from instrument approaches;
- (iv) in flight manoeuvres and particular flight characteristics.

(5) If the privileges of the instrument rating are to be exercised on multi-engine helicopters, the applicant shall have received dual instrument flight instruction in such an helicopter from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in the operation of the helicopter solely by reference to instruments with one engine inoperative or simulated inoperative.

(d) **Skill.** The applicant for an IR(H) shall:

(1) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

(2) have demonstrated by passing a skill test the ability to perform the areas of operation described in IS 2.3.3.5 Appendix B, with a degree of competency appropriate to the privileges granted to the holder of an IR(H), and to:

- (i) operate the helicopter within its limitations;
- (ii) complete all manoeuvres with smoothness and accuracy;
- (iii) exercise good judgement and airmanship;

(iv) apply aeronautical knowledge; and

(v) maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(e) **Medical fitness.** Applicants who hold a PPL shall have established their hearing acuity on the basis of compliance with the hearing requirements for the issue of a Class 1 Medical Certificate.

(f) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of an IR(H) shall be to pilot helicopters under IFR.

(g) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of the instrument rating is 1 year.

(h) **Renewal.**

(1) For the renewal of an IR(H) the applicant shall within the preceding 12 months, complete a proficiency check on the subjects listed in IS 2.3.3.5 Appendix B.

(2) If a pilot takes the proficiency check required in this section in the month before or the month after the month in which it is due, the pilot is considered to have taken it in the month in which it was due for the purpose of computing when the next proficiency check is due.

(i) **Re-issue.** If the instrument rating has been expired the applicant shall:

(1) have received refresher training from an authorized instructor with an endorsement that the person is prepared for the required skill test; and

(2) pass the required skill test on the subjects listed in IS 2.3.3.5 Appendix B.

2.3.3.10 Instructor Ratings – Aeroplane and Helicopter

(a) **General** The applicant for an instructor rating or authorization – aeroplane or helicopter, shall:

(1) hold at least the licences and rating for which instruction is being given, in the appropriate category; and

(2) hold the licences and rating necessary to act as the pilot-in-command of the aircraft on which the instruction is given; or

(3) hold a specific authorization granted by the Authority.

(b) **Flight Instructors**

(1) **Age.** The applicant for a flight instructor rating (FI) shall be not less than 18 years of age.

(2) **Knowledge:**

(i) The applicant for a FI rating shall have met the knowledge requirements for the issue of a CPL as specified in 2.3.3.3 and 2.3.3.7, as applicable.

(ii) In addition, the applicant for an FI rating shall receive and log ground training from an authorized instructor on the following subjects:

- (A) techniques of applied instruction;
- (B) assessment of student performance in those subjects in which ground instruction is given;
- (C) the learning process;
- (D) elements of effective teaching;
- (E) student evaluation and testing, training philosophies;
- (F) training programme development;
- (G) lesson planning
- (H) classroom instructional techniques;
- (I) use of training aids;

(J) analysis and correction of student errors;

(K) human performance relevant to flight instruction; and

(L) hazards involved in simulating system failures and malfunctions in the aircraft

(iii) Have received an endorsement for the knowledge test from an authorized instructor who:

(A) conducted the training on the knowledge subjects;

(B) certifies that the person is prepared for the required knowledge test; and

(iv) pass the required knowledge test on the knowledge subjects listed in (i).

(A) This test may be combined with the test under (5).

(v) The holder of a FI rating, issued under this Part, applying for an additional FI rating is exempted from this paragraph (2).

(3) **Experience.** The applicant for a FI rating shall have completed not less than 200 hours of flight time on single-pilot aircraft of the appropriate category.

(4) **Flight Instruction.** The applicant for a FI rating shall, under the supervision of an instructor accepted by the Authority for that purpose

(i) have received instruction in flight instructional techniques including demonstration, student practices, recognition and correction of common student errors; and

(ii) have practised instructional techniques in those flight manoeuvres and procedures in which it is intended to provide flight instruction listed in IS 2.3.3.10 Appendix A or B, as applicable.

- (5) **Skill.** The applicant for an FI rating shall:
- (i) have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and
 - (ii) pass the required skill test on the subjects listed in IS 2.3.3.10 Appendix A or B, as applicable.
- (c) **Privileges.** Subject to compliance with the requirements specified in this Part,
- (i) the privileges for the holder of a FI rating shall be:
 - (A) to supervise solo flights by student pilots;
 - (B) to carry out flight instruction for the issue of a PPL,
 - (C) to carry out flight instruction for the issue of a CPL, if he or she has completed 500 hrs. of flight time and 200 hours of flight instruction;
 - (D) to carry out flight instruction for the issue of a single-engine class rating if he or she has 15 hrs on the applicable type in the preceding 12 months;
 - (E) to carry out flight instruction for the issue of a multi-engine class rating if he or she has 500 hrs flight time and 15 hours on the applicable type in the preceding 12 months; and
 - (F) to carry out flight instruction for the issue of an instructor rating, if he or she has completed 500 hours of instruction in the appropriate category.
 - (ii) the privileges of the holder of a FI instrument rating shall be to carry out flight instruction for the issue of an IR, if he or she has completed 200 hours flight in accordance with instrument flight rules and passed the test on the subjects listed in IS 2.3.3.10 Appendix B.

(d) **Instructor rating for additional type ratings:**

- (1) Subject to compliance with this Subpart, pilots having experience in accordance with (3) below, may apply for an instructors rating for additional type ratings.
- (2) Knowledge.
 - (i) The applicant for an instructor rating for additional type ratings shall receive and log ground training from an authorized instructor on the following subjects:
 - (A) Techniques of applied instruction;
 - (B) Assessment of student performance in those subjects in which ground instruction is given;
 - (C) The learning process;
 - (D) Elements of effective teaching;
 - (E) Student evaluation and testing, training philosophies;
 - (F) Training programme development;
 - (G) Lesson planning;
 - (H) Classroom instructional techniques;
 - (I) Use of training aids;
 - (J) Analysis and correction of student errors;
 - (K) Human performance relevant to flight instruction; and
 - (L) Hazards involved in simulating system failures and malfunctions in the aircraft;

- (ii) shall have received an endorsement for the knowledge test from an authorized instructor who:
 - (A) Conducted the training on the knowledge subjects;
 - (B) Certifies that the person is prepared for the required knowledge test; and
 - (iii) Pass the required knowledge test on the subjects listed in (i).
 - (A) The test may be combined with the test under (5).
 - (iv) The holder of an instructor rating for additional type ratings is exempted from this paragraph.
- (3) Experience:
 - (i) The applicant for an instructor rating for additional type ratings shall have completed:
 - (A) for single-pilot type rating instruction 500 hours of flight time as pilot-in-command
 - (B) for multi-pilot type rating instruction 500 hours of flight time as pilot-in-command on multi-pilot aircraft of the appropriate category including 30 route sectors in the preceding 12 months of which 15 sectors may have been completed in a Flight Simulator Training Device.
 - (4) **Flight Instruction:** The applicant for an instructor rating for additional type ratings shall, under the supervision of an instructor accepted by the Authority for that purpose:
 - (i) have received instruction in instructional techniques including demonstration, student practices, recognition and correction of common student errors; and

- (ii) have practised instructional techniques in those flight manoeuvres and procedures in which it is intended to provide instruction on the subjects listed in Appendix C for type rating instructor.
 - (5) **Skill.** The applicant shall have demonstrated in a skill test, in the category and in type of aircraft for which instructor privileges are sought, the ability to instruct in those areas in which instruction is to be given, including pre-flight, post-flight and ground instruction as appropriate on the subjects listed in Appendix C for type rating instructor.
 - (6) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a instructor rating are to carry out flight instruction for the issue of an additional type rating including CRM training in the appropriate category.
 - (e) **Instructor Authorization for Synthetic Flight Training.**
 - (1) Notwithstanding 2.3.3.10(a), former holders of professional pilot licences, having instructional experience can apply for an authorization to provide flight instruction in a synthetic flight trainer, provided the applicant has at least 2 years' experience as instructor in synthetic flight trainers.
 - (2) **Skill.** The applicant shall have demonstrated in a skill test, in the category and in the class or type of aircraft for which instructor authorization privileges are sought, the ability to instruct in those areas in which ground instruction is to be given.
 - (3) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of an authorization are to carry out synthetic flight training instruction for the issue of a class or type rating in the appropriate category.
 - (f) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of instructor ratings and authorization is 2 years.
 - (g) **Renewal.**
 - (1) For the renewal of an FI rating the applicant shall:

- (i) have conducted at least 30 hours of flight instruction within the 12 months preceding the expiry date; or
- (ii) within the preceding 24 months complete a proficiency check on the subjects listed in IS 2.3.3.10 Appendix A or B, as applicable.

(2) For the renewal of an instructor rating for additional class ratings the applicant shall:

- (i) have conducted at least 30 hours of flight instruction within the 12 months preceding the expiry date; or
- (ii) within the preceding 24 months complete a proficiency check on the subjects listed in IS 2.3.3.10 Appendix A.

(3) For the renewal of an instructor rating for additional type ratings the applicant shall:

- (i) have conducted one simulator session of at least 3 hours or one air exercise of at least 1 hour of a type rating course in the preceding 12 months; and
- (ii) within the preceding 24 months complete a proficiency check on the subjects listed in IS 2.3.3.10 Appendix C.

(4) For the renewal of an instructor authorization for synthetic flight training the applicant shall:

- (i) have conducted one simulator session of at least 3 hours of a type rating course in the preceding 12 months.

(5) If an instructor takes the proficiency check required in this section in the month before or the month after the month in which it is due, the instructor is considered to have taken it in the month in which it was due for the purpose of computing when the next proficiency check is due.

(h) **Re-issue.** If the instructor rating or authorization has been expired the applicant shall:

(1) have received refresher training from an authorized instructor with an endorsement that the person is prepared for the required skill test; and

(2) pass the required skill test on the subjects listed in IS 2.3.3.10 Appendix A, B or C, as applicable.

2.3.3.11 Examiners

(a) **General.** Examiners shall hold at least the licences and the rating for which they are authorized to conduct skill tests or proficiency checks and shall hold the privilege to instruct for this licences or rating.

(b) **Experience.** The applicant for the examiner's authorization shall have 1000 hours of flight time and 200 hours of flight instruction.

(c) **Training.** The ground, flight and simulator training for Examiners shall include the subjects listed in IS 2.3.3.11.

(d) **Skill test.** The applicant for an examiner authorization shall have conducted at least one skill test in the role of an examiner for which authorization is sought, including briefing, conduct of the skill test, assessment of the applicant to whom the skill test is given, debriefing and recording/documentation. This skill test shall be supervised by an inspector of the Authority or by a senior examiner specifically authorized by the Authority for this purpose.

(e) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the examiner's authorization are to conduct skill tests and proficiency checks for a licences and rating(s).

(f) **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of an examiner's authorization is 2 years. Re-authorisation will be at the discretion of the Authority.

2.3.3.12 Glider Pilot Licences

(a) **Age.** The applicant for a glider pilot licences shall be not less than 16 years of age.

(b) **Knowledge.** The applicant for a glider pilot licences shall:

- (1) receive training on the knowledge subjects:
 - (i) Air law: rules and regulations relevant to the holder of a glider pilot licences; rules of the air; appropriate air traffic services practices and procedures;
 - (ii) Aircraft general knowledge:
 - (A) principles of operation of glider systems and instruments;
 - (B) operating limitations of gliders; relevant operational information from the flight manual or other appropriate document;
 - (iii) Flight performance and planning:
 - (A) effects of loading and mass distribution on flight characteristics; mass and balance considerations;
 - (B) use and practical application of launching, landing and other performance data;
 - (C) pre-flight and enroute flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;
 - (iv) Human performance: human performance relevant to the glider pilot;
 - (v) Meteorology: application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;
 - (vi) Navigation: practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;
 - (vii) Operation procedures:
 - (A) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;

- (B) different launch methods and associated procedures;
- (C) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather and wake turbulence and other operating hazards;
 - (viii) Principles of flight: principles of flight relating to gliders
- (2) pass the required knowledge test.
- (c) **Experience.**
 - (1) The applicant shall have completed not less than 6 hours of flight time as a pilot of gliders including 2 hours' solo flight time during which not less than 20 launches and landings have been performed.
 - (2) The applicant for a glider pilot licences shall have gained, under appropriate supervision, Operational experience in a glider in at least the following areas:
 - (i) pre-flight operations, including glider assembly and inspection;
 - (ii) techniques and procedures for the launching method used, including appropriate airspeed limitations, emergency procedures and signals used;
 - (iii) traffic pattern operations, collision avoidance precautions and procedures;
 - (iv) control of the glider by external visual reference;
 - (v) flight throughout the flight envelope;
 - (vi) recognition of, and recovery from, incipient and full stalls and spiral dives;
 - (vii) normal and cross-wind launches, approaches and landings;

- (viii) cross-country flying using visual reference and dead reckoning;
- (ix) emergency procedures.

(3) The holder of a pilot licences in the aeroplane category may be credited with 3 hours towards the 6 hours of flight time required for the glider licences.

(d) **Skill.** The applicant for a glider pilot licences shall have demonstrated by passing the required skill test the ability to perform as pilot-in-command of a glider, the procedures and manoeuvres described in (c) with a degree of competency appropriate to the privileges granted to the holder of a glider pilot licences, and to:

- (1) operate the glider within its limitations;
- (2) complete all manoeuvres with smoothness and accuracy;
- (3) exercise good judgement and airmanship;
- (4) apply aeronautical knowledge; and

(5) maintain control of the glider at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(e) **Medical Fitness.** The applicant of a glider pilot licences shall hold a current Class 2 Medical Certificate.

(f) **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a glider pilot licences shall be to act as pilot-in-command of any glider provided that the licences holder has operational experience in the launching method used.

(g) **Validity of the licences.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.

2.3.3.13 Free balloon pilot licences

(a) **Age.** The applicant for a free balloon pilot licences shall be not less than 16 years of age.

(b) **Knowledge.** The applicant for a free balloon pilot licences shall:

(1) receive training on the following knowledge subjects:

(i) Air law: rules and regulations relevant to the holder of a free balloon pilot licences; rules of the air; appropriate air traffic services practices and procedures;

(ii) Aircraft general knowledge:

(A) principles of operation of free balloon systems and instruments;

(B) operating limitations of free balloons; relevant operational information from the flight manual or other appropriate document;

(C) physical properties and practical application of gases used in free balloons;

(iii) Flight performance and planning:

(A) effects of loading and mass distribution on flight characteristics; mass calculations;

(B) use and practical application of launching, landing and other performance data, including the effect of temperature;

(C) pre-flight and enroute flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;

- (iv) Human performance: human performance relevant to the free balloon pilot;
- (v) Meteorology: application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;
- (vi) Navigation: practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;
- (vii) Operation procedures:
 - (A) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
 - (B) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather and wake turbulence and other operating hazards;
- (viii) Principles of flight: principles of flight relating to gliders
- (ix) Radiotelephony: the applicant should have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a free balloon pilot licences, in radiotelephony procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure;

(2) pass the required knowledge test.

(c) **Experience.**

(1) The applicant shall have completed not less than 16 hours of flight time as a pilot of free balloons including at least 8 launches and ascents of which one must be solo.

(2) The applicant for a free balloon pilot licences shall have gained in free balloons under appropriate supervision operational experience.

(3) If the privileges of the licences are to be exercised at night, the applicant shall have gained, under appropriate supervision, operational experience in free balloons in night flying.

(d) **Skill.** The applicant for a free balloon pilot licences shall have demonstrated by passing the required skill test the ability to perform as pilot-in-command of a free balloon, the procedures and manoeuvres described in (c) with a degree of competency appropriate to the privileges granted to the holder of a free balloon pilot licences, and to:

(1) operate the free balloon within its limitations;

(2) complete all manoeuvres with smoothness and accuracy;

(3) exercise good judgement and airmanship;

(4) apply aeronautical knowledge; and

(5) maintain control of the free balloon at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(e) **Medical fitness.** The applicant for a free balloon pilot licences shall hold a current Class 2 Medical Certificate.

(f) **Privileges.**

(1) Subject to compliance with the requirements specified in this Part, the privileges of the holder of a free balloon pilot licences shall be to act as a pilot-in-command of any free balloon provided that the licences holder has operational experience in hot air or gas balloons, as appropriate.

(2) Before exercising the privileges at night, the licences holder shall have complied with the requirements as specified in (c)(3).

(g) **Validity of the licences.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.

2.4 FLIGHTENGINEERLICENCESANDRATINGS

2.4.1 *Applicability*

This section prescribes the requirements for the issue, renewal and re-issue of a flight engineers licences and ratings.

2.4.4 General

2.4.4.1.1 A person shall not act as a flight engineer of an aircraft registered in Sierra Leone unless a valid licences or a validation certificate is held showing compliance with the specifications of this Part and appropriate to the duties to be performed by that person.

2.4.4.1.2 For the purpose of training, testing or specific special purpose non-revenue, non-passenger carrying flights, special authorization may be provided in writing to the licences holder by Sierra Leone in place of issuing the class or type rating in accordance with this Part. This authorization will be limited in validity to the time needed to complete the specific flight.

2.4.4.1.3 An applicant shall, before being issued with a flight engineer licences, meet such requirements in respect of age, knowledge, experience, skill, medical fitness and language proficiency as are specified for that licences or rating.

2.4.4.1.4 An applicant shall for renewal or re-issue of a licences, rating or authorization meet the requirements as are specified for that licences, rating or authorization.

2.4.5 *TYPE RATING – FLIGHT ENGINEER*

2.4.5.1.1 **Knowledge.** The applicant for a type rating shall have completed the theoretical knowledge instruction and demonstrated by passing a knowledge test the knowledge subjects as listed in IS 2.3.2.4 Appendix A.

2.4.5.1.2 **Experience.** The applicant for a type rating shall:

2.4.5.1.2.1 have at least 100 hours flight time in the performance of the duties of a flight engineer; and

2.4.5.1.2.2 have completed a CRM course as listed in IS 2.3.2.4 Appendix B.

2.4.5.1.3 **Flight Instruction.** The applicant for a type rating shall have completed the flight instruction for the type rating on the subjects listed in IS 2.4.3.

2.4.5.1.4 **Skill.** The applicant for a type rating shall:

2.4.5.1.4.1 have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and

2.4.5.1.4.2 pass the required skill test on the subjects listed in IS 2.4.3.

2.4.5.1.5 **Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a type rating are to act as flight engineer on the type of aircraft specified in the rating.

2.4.5.1.6 **Validity.** Subject to compliance with the requirements specified in this Part, the validity period of a type rating is 1 year.

2.4.5.1.7 **Renewal.** For the renewal of a type rating the flight engineer shall:

2.4.5.1.7.1 within the preceding 12 months complete a proficiency check on the subjects as listed in IS 2.4.3 ; and

2.4.5.1.7.2 have completed 10 route sectors.

2.4.5.1.7.3 If a flight engineer takes the proficiency check required in this section in the month before or the month after the month in which it is due, the flight engineer is considered to have taken it in the month in which it was due for the purpose of computing when the next proficiency check is due.

- 2.4.5.1.8** *Re-issue.* If a type rating has been expired the applicant shall:
- 2.4.5.1.8.1 have received refresher training from an authorized instructor with an endorsement that the person is prepared for the required skill test; and
- 2.4.5.1.8.2 pass the required skill test on the subjects listed in IS 2.4.3.
- 2.4.6 Flight Engineer Licences
- 2.4.6.1.1** *Age.* The applicant for a flight engineer licences shall be not less than 18 years of age.
- 2.4.6.1.2** *Knowledge.* The applicant for a flight engineer licences shall
- 2.4.6.1.2.1 receive and log ground training from an authorized instructor on the following subjects:
- 2.4.6.1.2.1.1 Air law: rules and regulations relevant to the holder of a flight engineer licences; rules and regulations governing the operation of civil aircraft pertinent to the duties of a flight engineer;
- 2.4.6.1.2.1.2 Aircraft general knowledge:
- 2.4.6.1.2.1.2.1 basic principles of powerplants; gas turbines and/or piston engines; characteristics of fuels; fuel systems including fuel control; lubricants and lubrication systems; afterburners and injection systems, function and operation of engine ignition and starter systems;
- 2.4.6.1.2.1.2.2 principles of operation; handling procedures and operating limitations of aircraft powerplants; effects of atmospheric conditions on engine performance;
- 2.4.6.1.2.1.2.3 airframes; flight controls; structures; wheel assemblies; brakes and anti-skid units; corrosion and fatigue life; identification of structural damage and defects;
- 2.4.6.1.2.1.2.4 ice and rain protection systems;

- 2.4.6.1.2.1.2.5 pressurization and air-conditioning systems; oxygen systems;
- 2.4.6.1.2.1.2.6 hydraulic and pneumatic systems;
- 2.4.6.1.2.1.2.7 basic electrical theory, electric systems (AC and DC); aircraft wiring systems; bonding and screening;
- 2.4.6.1.2.1.2.8 principles of operation of instruments, compasses, autopilots, radio communication equipment, radio and radar navigation aids, flight management systems, displays and avionics;
- 2.4.6.1.2.1.2.9 limitations of appropriate aircraft;
- 2.4.6.1.2.1.2.10 fire protection, detection, suppression and extinguishing systems;
- 2.4.6.1.2.1.2.11 use and serviceability checks of equipment and systems of appropriate aircraft;
- 2.4.6.1.2.1.3 Flight performance and planning:
- 2.4.6.1.2.1.3.1 effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
- 2.4.6.1.2.1.3.2 use and practical application of performance data including procedures for cruise control;
- 2.4.6.1.2.1.4 Human performance: human performance relevant to the flight engineer;
- 2.4.6.1.2.1.5 Operational procedures:
- 2.4.6.1.2.1.5.1 principles of maintenance; procedures for the maintenance of airworthiness; defect reporting; pre-flight inspections; precautionary procedures for fuelling and use of external power; installed equipment and cabin systems;
- 2.4.6.1.2.1.5.2 normal, abnormal and emergency procedures;
- 2.4.6.1.2.1.5.3 operational procedures for carriage of freight and dangerous goods;

- 2.4.6.1.2.1.6 Principles of flight: fundamentals of aerodynamics;
- 2.4.6.1.2.1.7 Radiotelephony: radiotelephony procedures and phraseology;
- 2.4.6.1.2.2 have received an endorsement for the knowledge test from an authorized instructor who:
 - 2.4.6.1.2.2.1 conducted the training on the knowledge subjects;
 - 2.4.6.1.2.2.2 certifies that the person is prepared for the required knowledge test; and
- 2.4.6.1.2.3 pass the required knowledge test.

2.4.6.1.3 Experience.

- 2.4.6.1.3.1 The applicant for a flight engineer licences shall have completed under the supervision of a person accepted by the Authority for that purpose, not less than 100 hours of flight time in the performance of the duties of a flight engineer, of which 50 hours may have been completed in a Flight Simulator Training Device.
- 2.4.6.1.3.2 The holder of a pilot licences may be credited with 30 hours towards the 100 hours of flight time.
- 2.4.6.1.3.3 The applicant shall have operational experience in the performance of the duties of a flight engineer, under the supervision of a flight engineer accepted by the Authority for that purpose, in at least the following areas:
 - 2.4.6.1.3.3.1 Normal procedures:
 - 2.4.6.1.3.3.1.1 pre-flight inspections
 - 2.4.6.1.3.3.1.2 fuelling procedures, fuel management
 - 2.4.6.1.3.3.1.3 inspection of maintenance documents
 - 2.4.6.1.3.3.1.4 normal flight deck procedures during all phases of flight
 - 2.4.6.1.3.3.1.5 crew coordination and procedures in case of crew incapacitation

- 2.4.6.1.3.4 The applicant shall have completed a CRM course as listed in IS 2.3.2.4 Appendix B.

2.4.6.1.4 Flight instruction. The applicant for a type rating shall have completed the flight instruction for the type rating on the subjects as listed in IS 2.4.3.

2.4.6.1.5 Skill. The applicant for a flight engineer licences shall:

- 2.4.6.1.5.1 Have received an endorsement from an authorized instructor who certifies that the person is prepared for the required skill test; and
- 2.4.6.1.5.2 Have demonstrated by passing the required skill test, the ability to perform as flight engineer of an aircraft, the duties and procedures described I(c) above with a degree of competency appropriate to the privileges granted to the holder of a flight engineer licences, and to
 - 2.4.6.1.5.2.1 Use aircraft systems within the aircraft's capabilities and limitations;
 - 2.4.6.1.5.2.2 Exercise good judgement and airmanship;
 - 2.4.6.1.5.2.3 Apply aeronautical knowledge;
 - 2.4.6.1.5.2.4 Perform all the duties as part of an integrated crew with the successful outcome never in doubt; and
 - 2.4.6.1.5.2.5 Communicate effectively with the other flight crew members.

2.4.6.1.6 Medical Fitness. The applicant for a flight engineer licences shall hold a current Class 1 Medical Certificate.

2.4.6.1.7 Privileges. Subject to compliance with the requirements specified in this Part, the privileges of the holder of a flight engineer licences shall be to act as flight engineer of any type of aircraft on which the holder has demonstrated a level of knowledge and skill, on the basis of those requirements specified in 2.4.4 (b) and (d) which are applicable to the safe operation of that type of aircraft.

2.4.6.1.8 Validity. Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see IS 2.2.3.

2.5 FLIGHT NAVIGATOR LICENCES

2.5.1 Applicability

This section prescribes the requirements for the issue, renewal and re-issue of a flight navigator licences.

2.5.4 GENERAL

- 2.5.4.1.1 An applicant shall, before being issued with a flight navigator licences, meet such requirements in respect of age, knowledge, experience, skill, medical fitness and language proficiency as are specified for that licences.
- 2.5.4.1.2 An applicant shall for renewal or re-issue of a licences, rating or authorization meet the requirements as are specified for that licences.
- 2.5.5 Flight navigator licences
- 2.5.5.1.1 Age.** The applicant shall be not less than 18 years of age.
- 2.5.5.1.2 *Knowledge.*
- 2.5.5.1.2.1 The applicant for a flight navigator licences shall receive and log ground training from an authorized instructor on the following subjects:
- 2.5.5.1.2.1.1 Air Law: rules and regulations relevant to the holder of a flight navigator licences; appropriate air traffic services practices and procedures;
- 2.5.5.1.2.1.2 Flight performance and planning
- 2.5.5.1.2.1.2.1 Effects of loading and mass distribution on aircraft performance;

- 2.5.5.1.2.1.2.2 Use of take-off, landing and other performance data including procedures for cruise control;
- 2.5.5.1.2.1.2.3 Pre-flight and enroute operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;
- 2.5.5.1.2.1.3 Human performance: human performance relevant to the flight navigator;
- 2.5.5.1.2.1.4 Meteorology
- 2.5.5.1.2.1.4.1 Interpretation and practical application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- 2.5.5.1.2.1.4.2 Aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, enroute and landing conditions;
- 2.5.5.1.2.1.5 Navigation
- 2.5.5.1.2.1.5.1 Dead-reckoning, pressure-pattern and celestial navigation procedures; the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- 2.5.5.1.2.1.5.2 Use, limitation and serviceability of avionics and instruments necessary for the navigation of the aircraft;
- 2.5.5.1.2.1.5.3 Use, accuracy and reliability of navigation systems used in departure, enroute and approach phases of flight; identification of radio navigation aids;
- 2.5.5.1.2.1.5.4 Principles, characteristics and use of self-contained and external-referenced navigation systems; operation of airborne equipment;

- 2.5.5.1.2.1.5.5 The celestial sphere including the movement of heavenly bodies and their selection and identification for the purpose of observation and reduction of sights; calibration of sextants; the completion of navigation documentation;
- 2.5.5.1.2.1.5.6 Definitions, units and formulae used in air navigation;
- 2.5.5.1.2.1.6 Operational procedures: interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes, abbreviations, and instrument procedure charts for departure, enroute, descent and approach;
- 2.5.5.1.2.1.7 Principles of flight: principles of flight;
- 2.5.5.1.2.1.8 Radiotelephony: radiotelephony procedures and phraseology.
- 2.5.5.1.2.2 Shall have received an endorsement for the knowledge test from an authorized instructor who:
 - 2.5.5.1.2.2.1.1 Conducted the training on the knowledge subjects;
 - 2.5.5.1.2.2.1.2 Certifies that the person is prepared for the required knowledge test; and
- 2.5.5.1.2.3 Pass the required knowledge test on the subjects listed in (i).
- 2.5.5.1.3 Experience
 - 2.5.5.1.3.1 The applicant shall have completed in the performance of the duties of a flight navigator, not less than 200 hours of flight time acceptable to the Authority, in aircraft engaged in cross-country flights, including not less than 30 hours by night.
 - 2.5.5.1.3.2 The holder of a pilot licences may be credited with 30 hours towards the 200 hours of flight time.
 - 2.5.5.1.3.3 The applicant shall produce evidence of having satisfactorily determined the aircraft's position in flight, and used that information to navigate the aircraft, as follows:

- 2.5.5.1.3.3.1 by night – not less than 25 times by celestial observations; and
- 2.5.5.1.3.3.2 by day – not less than 25 times by celestial observations in conjunction with self-contained or external-referenced navigation systems.
- 2.5.5.1.4 Skill.** The applicant shall have demonstrated by passing the required skill test the ability to perform as flight navigator of an aircraft with a degree of competency appropriate to the privileges granted to the holder of a flight navigator licences, and to:
 - 2.5.5.1.4.1 exercise good judgement and airmanship;
 - 2.5.5.1.4.2 apply aeronautical knowledge;
 - 2.5.5.1.4.3 perform all duties as part of an integrated crew; and
 - 2.5.5.1.4.4 communicate effectively with the other flight crew members.
- 2.5.5.1.5 Medical Fitness.** The applicant shall hold a current Class 1 Medical Certificate.
- 2.5.5.1.6 Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of a flight navigator licences shall be to act as flight navigator of any aircraft.
- 2.5.5.1.7 Validity.** Subject to compliance with the requirements specified in this Part, the validity period of the licences is 10 years. The licences shall become invalid when the flight navigator has ceased to exercise the privileges of the licences for a period of 6 months. The licences shall remain invalid until the flight navigator's ability to exercise the privileges of the licences has been re-established. For renewal of the licences see IS 2.2.3.

2.6 Aircraft Maintenance Personnel/Certifying Staff.

2.6.1 APPLICABILITY

- 2.6.1.1 This Subpart prescribes the requirements for the issuance of Aircraft Maintenance personnel licences/authorisations and associated ratings and the requirements for the qualification of those personnel authorised by an approved maintenance organisation to issue certificates of release to service.
- 2.6.1.2 Such personnel are required to hold a valid type rated aircraft maintenance engineer licences, which attests to their knowledge and experience and a valid certification authorisation which grants certification privileges to the individual, issued by the Approved Maintenance Organization.
- 2.6.1.3 For the aircraft maintenance licences issued under this subpart, compliance is required with Implementing Standard 3.4.2.3 and subparagraph 2.6.1.4, 2.6.1.5 and 2.6.1.6 for the appropriate basic category or categories.
- 2.6.1.4 The aircraft maintenance licences will be endorsed with the relevant basic category / categories and where appropriate any aircraft type ratings granted under this Subpart.
- 2.6.1.5 An aircraft maintenance licences can be issued without any aircraft type ratings, but it should be remembered that an aircraft type rating is one of the prerequisites for a certification authorisation.

2.6.2 ELIGIBILITY REQUIREMENTS: GENERAL

- (a) An applicant for AME licences and any associated rating shall-
- (1) be at least 21 years of age.
 - (2) Except as provided in paragraph 2.2, demonstrate the ability to read, write, speak and understand the English Language by reading and explaining appropriate maintenance publications and by writing defect and repair statements;

- (3) Comply with the knowledge, experience and skill requirements prescribed for the rating sought; and
- (4) Pass all of the prescribed tests for the rating sought within a period of 6 months.
 - (b) A licensed AME who applies for an additional type rating must meet the requirements of 2.6.1.5 and, within a period of 24 months, pass the test prescribed by 2.6.1.4 and 2.6.1.6 for the additional type rating sought.

Note: *Personnel authorised to exercise certification privileges, in accordance with previous Regulations valid before the coming into force of this Regulation, may continue to exercise these privileges.*

2.6.3 RATINGS

- (a) The following category ratings are issued under this Subpart-
- (1) Category A: Airframe and Powerplant
 - (2) Category B1: Airframe and Powerplant
 - (3) Category B2: Avionics
 - (4) Category C: Base Maintenance

2.6.4 AIRCRAFT RATING: KNOWLEDGE REQUIREMENTS

- (a) **Basic requirements**
- (1) Each applicant for an AME licences or rating shall, after meeting the applicable experience requirement of 2.6.5, pass the applicable knowledge tests covering the construction, maintenance and systems of aircraft to the rating sought, the regulations in this Subpart, and the applicable provisions in Part 5. The basic principles covering the installation and maintenance of propellers are included in the powerplant test.

(2) The applicant shall pass each section of the test before applying for the oral and practical tests prescribed by 2.6.6.

(3) Certifying staff must demonstrate by examination a level of knowledge acceptable to the Authority, in subject modules appropriate to the category for which an aircraft maintenance licences is issued or extended.

(4) The levels of knowledge are directly related to the complexity of certifications appropriate to the particular category; which means that category A must demonstrate a limited but adequate level of knowledge, where category B1 and B2 must demonstrate a complete level of knowledge in the appropriate subject modules. Category C certifying staff must meet the relevant level of knowledge for B1 or B2.

(5) Full or partial credit against the basic knowledge requirements and associated examination will be given for any other technical qualification considered by the Authority to be equivalent to the knowledge standard, contained in this Subpart.

(6) The applicant shall pass a knowledge test in Human factors principles to the level prescribed by IS: 3.4.2.3 of the CARs but not limited to the requirement of Annex 1 and 6. (See CAA approved guidance material on Human Factors Training – a companion document to ICAO Doc 9683)

(7) The applicant shall pass a knowledge test in Threat and Error Management

(8) For an applicant being a person qualified by holding an academic degree in an aeronautical, mechanical or electronic discipline from a recognised university or other higher educational institute the need for any examination will depend upon the course taken in relation to this Subpart.

Note: Knowledge gained and examinations passed during previous experiences, for example, in military aviation and civilian apprenticeships will be credited where the Authority is satisfied that such knowledge and examinations are equivalent to that required by this Subpart.

Implementing Standard: See IS: 3.4.2.3 for detailed training syllabi.

(b) **Type/task training and ratings**

(1) Category A certifying staff are required to hold an appropriate aircraft maintenance licences prior to the grant of a certification authorisation on a specific aircraft type. Certification authorizations may only be granted following the satisfactory completion of the relevant category A specific task training on each aircraft type carried out by an appropriately approved Training Organisation or maintenance organisation.

(2) Category B1 and B2 certifying staff are required to hold an appropriate aircraft type rated aircraft maintenance licences prior to the grant of a certification authorisation on a specific aircraft type. Ratings will be granted following satisfactory completion of the relevant category B1 or B2 aircraft type training approved by the Authority or by an appropriately approved maintenance training organisation.

(3) Category C certifying staff are required to hold an appropriate aircraft type rated maintenance licences prior to the grant of a certification authorisation on a specific aircraft type. Ratings will be granted following satisfactory completion of the relevant category C aircraft type training approved by the Authority or by an appropriately approved maintenance training organisation except in the case of a category C person qualified by holding an academic degree as specified in this Subpart where the first relevant aircraft type training must be at the category B1 or B2 level.

(4) Completion of approved aircraft task or type training, as required by sub-paragraphs (a) to (c) above must be satisfactorily demonstrated by an examination.

Implementing Standard: See IS: 2.6.5 for detailed requirements concerning type / type training.

2.6.5 EXPERIENCE REQUIREMENTS

An applicant for an AME licences or rating shall meet the following requirements-

- (a) *Certifying staff must meet a minimum civil aircraft maintenance experience requirement appropriate to the aircraft maintenance licences sought, which will be reduced by the Authority when satisfied that either an approved training or other appropriate technical training has been received. For category A and B1 or B2 the experience must be practical which means being involved with a representative cross section of maintenance tasks on aircraft.*
- (b) The minimum civil aircraft maintenance experience for possible paragraph (a) reductions means, for category A three years and for category B1 or B2 five years.
- (c) The minimum civil aircraft maintenance experience for category C is three years qualified as a B1 or B2 certifying staff in line maintenance, or in base maintenance supporting a category C certifying staff, or, a combination of both. Alternatively, the minimum civil aircraft experience for category C certifying staff qualified by holding an academic degree in a technical discipline from a university or other higher educational institute accepted by the Authority is three years on a representative selection of tasks directly associated with aircraft maintenance including six months of observation of base maintenance tasks.
- (d) *For all certifying staff, at least 1 year of the required experience must be recent maintenance experience on aircraft typical of the category/sub-category for which the aircraft maintenance engineer licences is sought.*

(1) To be considered as recent experience, at least 50% of the required 12 months experience should be gained within the 12 month period prior to the date of application for the aircraft maintenance engineer licences. The remainder of the experience should have been gained within the 7 year period prior to application.
 (2) Different aircraft types may be considered to be typical when the construction and operation of the airframe, powerplant, systems including avionic systems are of similar technology.

- (e) Aircraft maintenance experience gained outside a civil aircraft maintenance environment will be accepted by the Authority when satisfied that such maintenance is equivalent to that required by this Subpart but additional experience of civil aircraft maintenance will be required to ensure understanding of the civil aircraft maintenance environment.

(1) Aircraft maintenance experience gained outside a civil aircraft maintenance environment can include aircraft maintenance experience gained in armed forces, coast guards, police etc. or in aircraft manufacturing.

(2) For category A certifying staff the additional experience of civil aircraft maintenance, required in subparagraph (e), will be a minimum of 6 months. For category B1 or B2 certifying staff the additional experience of civil aircraft maintenance will be a minimum of 12 months.

- (f) Regarding qualification as category A certifying staff the following experience options apply

(1) 1 year recent practical maintenance experience on operating aircraft and completion of an approved basic training course; or,

(2) 2 years recent practical maintenance experience on operating aircraft and completion of training considered relevant by the Authority as a skilled worker, in a non-aviation technical trade; or,

(3) 3 years recent practical maintenance experience on operating aircraft for an applicant having no previous relevant technical training.

- (g) Regarding qualification as category B1 or B2 certifying staff the following experience options apply

(1) 2 years recent practical maintenance experience on operating aircraft and completion of an approved basic training course; or

(2) 3 years recent practical maintenance experience on operating aircraft and completion of training considered relevant by the Authority as a skilled worker, in a non-aviation technical trade; or

(3) 5 years recent practical maintenance experience on operating aircraft for an applicant having no previous relevant technical training.

(h) Regarding qualification as category C certifying staff-

(1) The 3 years' experience qualified as a category B1 or B2 certifying staff means line maintenance certification experience as category B1 or B2 certifying staff, or as a qualified category B1 or B2 supporting the category C certifying staff in base maintenance, or, a combination of both.

(2) The 3 years' experience for an applicant holding an academic degree in a technical discipline, from a university or other higher educational institution accepted by the Authority means working in a civil aircraft maintenance environment on a representative selection of tasks including the observation of hangar maintenance, maintenance planning, quality assurance, record keeping, approved spare parts control and engineering development.

Note 1 *Maintenance experience on operating aircraft means the experience of being involved in maintenance tasks on aircraft which are being operated by airlines, air taxi organisations, etc. the point being to gain sufficient experience in the environment of commercial maintenance as opposed to only the training school environment. Such experience may be combined with approved training so that periods of training can be intermixed with periods of experience rather like the apprenticeship.*

Note 2: *The time necessary for any additional classroom training may have to be added to the practical experience time.*

Note 3: *A skilled worker is a person who has successfully completed a course of training, acceptable to the Authority, involving the manufacture, repair, overhaul or inspection of mechanical, electronic equipment. The training would include the use of tools and measuring devices*

2.6.6 SKILL REQUIREMENTS

Each applicant for AME licences or rating must pass an oral and / or a practical test on the rating sought. The tests cover the applicant's basic skill in performing practical work on the subjects covered by the written test for that rating.

2.6.7 PRIVILEGES AND LIMITATIONS

(a) Certifications are made in accordance with the procedures of the approved maintenance organisation and within the scope of the authorisation. Certifying staff qualified in accordance with this Subpart, and holding a valid aircraft maintenance licences with, where applicable, the appropriate type ratings, will be eligible to hold an AMO certification authorisation in one or more of the following categories.

(1) **Category A** certifying staff authorisation permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification, within the limits of tasks specifically endorsed on the authorisation. The certification privileges are restricted to work that the authorisation holder has personally performed. Category A is sub-divided into sub-categories relative to combinations of aeroplanes, helicopters, turbine and piston engines.

(2) **Category B1** certifying staff authorisation permits the holder to issue certificates of release to service following line maintenance, including aircraft structure, powerplants and mechanical and electrical systems. Replacement of avionic line replaceable units, requiring simple tests to prove their serviceability, is also included in the privileges. Category B1 is sub-divided into sub-categories relative to combinations of aeroplanes, helicopters, turbine and piston engines. Category B1 certifying staff authorisation automatically permits certification in the appropriate Category A sub-categories

(3) **Category B2** certifying staff authorisation permits the holder to issue certificates of release to service following line maintenance on avionic and electrical systems. Category B2 certifying staff can qualify for any Category A sub-category as can any avionic mechanic subject to compliance with the appropriate Category A sub-category requirements.

(4) **Category C** certifying staff authorisation permits the holder to issue certificates of release to service following base maintenance. The authorisation is valid for the aircraft in its entirety, including all systems.

- (b) Sub-paragraphs (b)(1) – (b)(7) provide an acceptable means of compliance to paragraph 2.6.7(a)

(1) Certifying staff may be granted a certification authorisation in relation to the basic categories or sub-categories held and any type ratings listed on the aircraft maintenance licences subject to the document being valid at the time of authorisation issue and the continuing validity requirements being met.

(2) The following titles shown against each category designator below are intended to provide a readily understandable indication of the job function-

Category A: Line maintenance certifying Engineer.

Category B1: Line maintenance certifying Engineer – mechanical.

Category B2: Line maintenance certifying Engineer – avionics.

Category C: Base maintenance certifying engineer.

(3) Individual certifying staff need not be restricted to a single category. Provided that each qualification requirement is satisfied, any combination of categories may be granted.

(4) For the purposes of category A, minor scheduled line maintenance means any minor check up to but not including the A check where functional tests can be carried out by the aircrew to ensure system serviceability. In the case of an aircraft type not controlled by a maintenance programme based upon the ‘A’, ‘B’, ‘C’, ‘D’ check principle, minor scheduled line maintenance means any minor check up to and including the weekly check or equivalent.

(1) The categories B1 and B2 authorisations permit certification of unscheduled defect rectification and scheduled maintenance checks normally completed in a line maintenance environment. The rectification of defects arising from these scheduled maintenance checks may also be certified. The category B1 authorisation also permits the certification of work involving avionic systems, providing the serviceability of the system can be established by a simple self-test facility, other than on-board test systems/equipment or by simple ramp test equipment. Defect rectification involving test equipment which requires an element of decision-making in its application – other than a simple go/no-go decision – cannot be certified. The category B2 will need to be qualified as category A in order to carry out simple mechanical tasks and be able to make certifications for such work.

- (6) The Category A and B1 subcategories are-

A1 and B1.1 Aeroplanes Turbine

A2 and B1.2 Aeroplanes Piston

A3 and B1.3 Helicopters Turbine

A4 and B1.4 Helicopters Piston

A5 and B1.5 Reserved

(7) The category C authorisation permits certification of scheduled base maintenance by the issue of a single certificate of release to service for the complete aircraft after the completion of all such maintenance. The basis for this certification is that the maintenance has been carried out by competent mechanics and both category B1 and B2 staff have signed for the maintenance under their respective specialization. The principal function of the category C certifying staff is to ensure that all required maintenance has been called up and signed off by the category B1 and B2 staff before issue of the certificate of release to service. Category C personnel who also hold category B1 or B2 qualifications may perform both roles in base maintenance.

2.6.8 RECENT EXPERIENCE REQUIREMENT

- (a) The validity of Aircraft Maintenance Licences shall not exceed a period of two years from the date of issue.
- (b) Use of licences with a type rating to issue a certification requires that, during the 24 months preceding the date of the certification, the holder has been engaged for periods totaling at least 6 months on work affording experience comparable with that required for the grant of the licences.
- (c) The licences holder shall be satisfied that the licences ratings are correct.
- (d) The licences is NOT valid until signed in ink by the holder.
- (e) It is the responsibility of the licences holder to ensure that his or her licences remains valid. Applications for renewal will not be accepted more than 60 days before expiry of the licences.

- (f) A licences may be renewed provided the holder provides evidence of having been engaged on the maintenance of operating aircraft for periods totaling at least 6 months during the 12 months before application for renewal.

Where a licences holder is unable to show such experience but has been involved actively for the same minimum period in matters concerned with aircraft maintenance (e.g. as a quality engineer or quality manager, an aeronautical engineering instructor or a flight engineer) consideration may be given to renewing the licences.

- (g) A licences cannot be back-dated and in order to ensure continuity of licences coverage an acceptable application for renewal must be received by the Authority in good time before expiry of the licences. Any lack of continuity in the validity of the licences will be recorded on the renewed licences. Any certifications issued after a licences has lapsed could affect the validity of the Certificate of Airworthiness of the aircraft for which those certifications were issued.
- (h) If certification has been made under the authority of a licences which has lapsed, the licences will not be renewed until a statement has been made that all such certifications have been rectified by the holder of a valid licences. This statement must be made by the owner of the aircraft or by the maintenance organisation(s) responsible for the maintenance of the aircraft since the invalid certification was made.
- (i) If certification has been made under the authority of a Company Authorization based upon the certifier holding a valid licences which had lapsed at the time the certification was made, the licences will not be renewed until a statement has been made that all such certifications have been recertified by a holder of a valid Company Authorisation. This statement must be made by the Quality Manager of the approved maintenance organisation(s) responsible for the maintenance of the aircraft since the invalid certification was made.

- (j) The Authority can only renew a licences upon being satisfied with the renewal submission and upon the receipt of the statutory fee.
- (k) The approved maintenance organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of the Approval code of this Subpart. In granting the certification authorisation the approved maintenance organisation needs to be satisfied that the person holds a valid aircraft maintenance licences and may need to confirm such fact with the Authority. With regard to continued validity of the certification authorisation due regard should be given to the currency of maintenance experience and training in accordance with the Approved Maintenance Organisation Code.
- (l) Where the Authority permits the use of the aircraft maintenance licences as the basis for the release of aircraft not required to be maintained by an approved maintenance organisation it will be necessary to demonstrate 6 months of maintenance experience in each 2 year period to ensure continuity of such licences. In the case where it is not possible to demonstrate such maintenance experience, the Authority will specify the conditions to re-establish continuity of the licences.

2.6.9 ATOSTUDENTS

Whenever an ATO school, certified under these regulations, demonstrates to the Authority that a student is prepared to take the knowledge test prescribed by 2.6.9, that student may take those tests before meeting the applicable experience requirements of 2.6.5 and before passing the knowledge test prescribed by 2.6.4.

2.6.10 MEDICAL FITNESS

- (a) Certifying staff must not exercise the privileges of their certification authorisation if they know or suspect that their physical or mental condition renders them unfit to exercise such privileges, or whilst under the influence of drink or drugs.
- (b) Medical opinion considers that alcohol present in the blood stream in any quantity affects the ability to make decisions. It is the responsibility of all certifying staff to ensure that they are not adversely affected.
- (c) The use of any legally administered drug, or medicines, including those used for the treatment of a disease or disorder, which has been shown to exhibit adverse side effects, which affect the decision making ability of the user, should be administered according to medical advice. No other drugs should be used.
- (d) Certifying staff are responsible for ensuring that their physical condition does not adversely affect their ability to satisfactorily certify the work for which they are responsible. Eyesight, including, where applicable, colour vision, is particularly important in this respect.

2.6.11 EVIDENCE OF QUALIFICATION

Certifying staff qualified in accordance with this Subpart will be issued with an aircraft maintenance licences by the Authority as evidence of one of the qualifications necessary for the grant of a certification authorisation. Certifying staff must be able to produce their licences if requested by an authorized person within a reasonable time.

2.6.12 EQUIVALENT SAFETY CASES

The Authority may exempt any person, required to be qualified in accordance with this Regulation from any requirement in this Regulation when satisfied that a situation exists not covered by this Regulation and subject to compliance with any supplementary condition(s) the Authority considers necessary to ensure equivalent safety.

2.6.13 REVOCATION, SUSPENSION OR LIMITATION OF THE AIRCRAFT MAINTENANCE LICENCES

- (a) The Authority may, on reasonable grounds after due enquiry, revoke, suspend or limit the aircraft maintenance licences or direct the SLCAA approved maintenance organization to revoke, suspend or limit the certification authorisation if the Authority is not satisfied that the holder of the licences and authorisation is a fit and proper person to hold such licences and authorisation.
- (b) Before revoking or limiting the aircraft maintenance licences or directing the approved maintenance organization the Authority must first give at least 28 days notice to the affected party or parties in writing of its intention so to do and of the reasons for its proposal and must offer the affected party or parties an opportunity to make representations and the Authority will consider those representations.
- (c) In the case where the Authority has determined that the safe operation of the aircraft is adversely affected the Authority may in addition to sub-paragraph (a) provisionally suspend the aircraft maintenance licences without prior notice until the sub-paragraph (a) procedure is complete.
- (d) For the Authority to consider a person to be not a fit and a proper person means that there is clear evidence that the person has knowingly carried out or been involved in one or more of the following activities-
 - (1) Obtained the aircraft maintenance licences and/or the certification authorisation by falsification of submitted evidence.
 - (2) Failed to carry out requested maintenance combined with failure to report such fact to the organization that requested the maintenance.

(3) Failed to carry out required maintenance resulting from own inspection combined with failure to report such fact to the organization for whom the maintenance was intended to be carried out.

(4) Negligent maintenance

(5) Falsification of the maintenance record.

(6) The issue of a certificate of release to service knowing that the maintenance specified on the Certificate of Release to Service has not been carried out or without verifying that such maintenance has been carried out.

(7) Carrying out maintenance or issuing a certificate of release to service when adversely affected by alcohol or drugs.

2.6.14 EXPIRED LICENCES

- (a) A licences which has lapsed for less than 2 years will be considered for renewal without examination of the holder provided that the other requirements of this subpart are met.
- (b) A licences which has lapsed for more than 2 years will not be renewed without examination of the holder. The amount of recent experience required will depend on the length of time since the licences lapsed and the nature of employment. Examination details appropriate to the circumstances will be notified by the Authority

2.6.15 VALIDATION

- (a) Validation of a foreign Aircraft Maintenance Engineer Licences may be granted for a short duration not exceeding 12 months or the expiry date of the original licences, whichever is less. The applicant shall pass an examination on the Civil Aviation Regulations, relevant to the duties of a holder of Aircraft Maintenance Engineer Licences.

(b) A validation is not renewable beyond the 12-month duration.

(c) An applicant is required to produce his original licences issued by an ICAO Contracting State including the Certificate of Validity and certified recent experience.

(d) The applicant should be an employee of a Sierra Leone Registered Company.

2.6.16 AIRCRAFT MAINTENANCE AUTHORISATION/APPROVAL

- (a) The Authority may issue to a qualified person an authorisation or an approval to carry out maintenance work on an aircraft. The applicant shall demonstrate to the Authority that he/she has adequate knowledge, qualification and experience relating to the maintenance function for which authorisation is sought.
- (b) Privileges and limitations for the maintenance function will be specified in the authorisation/approval granted.

2.7 AIR TRAFFIC CONTROLLER LICENCES, CATEGORIES AND RATINGS

2.7.1 Applicability

This section prescribes the requirements for the issue, renewal and re-issue of an air traffic controller licences and ratings.

2.7.1 General

2.7.1.5.1 An applicant shall, before being issued with an air traffic controllers licences, meet such requirements in respect of age, knowledge, experience, skill, medical fitness and language proficiency as are specified for that licences or rating.

2.7.1.5.2 An applicant shall for renewal or re-issue of a licences, rating or authorization meet the requirements as are specified for that licences, rating or authorization.

2.7.2 Air traffic controller licences

2.7.2.5.1 Age. The applicant for an air traffic controller licences shall be not less than 21 years of age.

2.7.2.5.2 Knowledge. The applicant for an air traffic controller licences shall

(1) receive an approved training course from an authorized instructor on the knowledge areas:

- 2.7.2.5.2.1.1 Air law: rules and regulations relevant to the air traffic controller; rules and regulations relevant to the air traffic controller;
- 2.7.2.5.2.1.2 Air traffic control equipment: principles, use and limitations of equipment used in air traffic control;
- 2.7.2.5.2.1.3 General knowledge: principles of flight; principles of operation and functioning of aircraft, powerplants and systems; aircraft performances relevant to air traffic control operations;
- 2.7.2.5.2.1.4 Human performance: human performance relevant to air traffic control;
- 2.7.2.5.2.1.5 Language: the language or languages nationally designated for use in air traffic control and ability to speak such language or languages without accent or impediment which would adversely affect radio communication;
- 2.7.2.5.2.1.6 Meteorology: aeronautical meteorology; use and appreciation of meteorological documentation and information; origin and characteristics of weather phenomena affecting flight operations and safety; altimetry;
- 2.7.2.5.2.1.7 Navigation: principles of air navigation; principle, limitation and accuracy of navigation systems and visual aids;
- 2.7.2.5.2.1.8 Operational procedures: air traffic control, communication, radiotelephony and phraseology procedures (routine, non-routine and emergency); use of the relevant aeronautical documentation; safety practices associated with flight.

(2) have received an endorsement for the knowledge test from an authorized instructor who:

- 2.7.2.5.2.2.1 conducted the training on the knowledge areas;
- 2.7.2.5.2.2.2 certifies that the person is prepared for the required knowledge test; and
- (3) pass the required knowledge test.

2.7.2.5.3 Experience. The applicant shall have completed an approved training course and not less than three months' satisfactory service engaged in the actual control of air traffic under the supervision of an appropriately rated air traffic controller. The experience requirements specified for air traffic controller ratings in 2.7.4 will be credited as part of the experience specified in this paragraph.

2.7.2.5.4 Medical Fitness. The applicant for an air traffic controller licences shall hold a current Class 3 Medical Certificate.

2.7.2.5.5 Validity. Subject to compliance with the requirement specified in this Part, the validity period of the licences is 10 years. For renewal of the licences see 2.2.3.

2.7.3 AIR TRAFFIC CONTROLLER CATEGORIES

2.7.3.5.1 Air traffic controller ratings shall comprise the following categories:

- (1) aerodrome control rating;
- (2) approach control rating;
- (3) approach radar control rating;
- (4) approach precision radar control rating;
- (5) area control rating; and
- (6) area radar control rating.

2.7.4 AIR TRAFFIC CONTROLLER RATINGS

2.7.4.5.1 Knowledge. The applicant for an air traffic controller licences shall receive an approved training course from an authorized instructor on the following subjects:

- 2.7.4.5.1.1.1 aerodrome control rating:
 - 2.7.4.5.1.1.1.1 aerodrome layout; physical characteristics and visual aids;
 - 2.7.4.5.1.1.1.2 airspace structure;
 - 2.7.4.5.1.1.1.3 applicable rules, procedures and source of information;
 - 2.7.4.5.1.1.1.4 air navigation facilities;
 - 2.7.4.5.1.1.1.5 air traffic control equipment and its use;
 - 2.7.4.5.1.1.1.6 terrain and prominent landmarks;
 - 2.7.4.5.1.1.1.7 characteristics of air traffic;
 - 2.7.4.5.1.1.1.8 weather phenomena; and
 - 2.7.4.5.1.1.1.9 emergency and search and rescue plans;
- 2.7.4.5.1.1.2 approach control and area control ratings:
 - 2.7.4.5.1.1.2.1 airspace structure;
 - 2.7.4.5.1.1.2.2 applicable rules, procedures and source of information;
 - 2.7.4.5.1.1.2.3 air navigation facilities;
 - 2.7.4.5.1.1.2.4 air traffic control equipment and its use;
 - 2.7.4.5.1.1.2.5 terrain and prominent landmarks;
 - 2.7.4.5.1.1.2.6 characteristics of air traffic and traffic flow;
 - 2.7.4.5.1.1.2.7 weather phenomena; and
 - 2.7.4.5.1.1.2.8 emergency and search and rescue plans; and
- 2.7.4.5.1.1.3 approach radar, approach precision radar and area radar control ratings. The applicant shall meet the requirements specified in (ii) in so far as they affect the area of responsibility, and shall have demonstrated a level of knowledge appropriate to the privileges granted, in at least the following additional subjects:

- 2.7.4.5.1.1.3.1 principles, use and limitations of radar, other surveillance systems and associated equipment; and
 - 2.7.4.5.1.1.3.2 procedures for the provision of approach, precision approach or area radar control services, as appropriate, including procedures to ensure appropriate terrain clearance;
 - (iv) principles and procedures relating to threat and errormanagement
 - (2) have received an endorsement for the knowledge test from an authorized instructor who:
 - 2.7.4.5.1.2.1 conducted the training on the knowledge areas;
 - 2.7.4.5.1.2.2 certifies that the person is prepared for the required knowledge test; and
 - (3) pass the required knowledge test.
- 2.7.4.5.2 Experience.**
- (1) The applicant for an air traffic controller licences shall have:
 - 2.7.4.5.2.1.1 satisfactorily completed an approved training course;
 - 2.7.4.5.2.1.2 provided, satisfactorily, under the supervision of an appropriately rated air traffic controller:
 - 2.7.4.5.2.1.2.1 aerodrome control rating: an aerodrome control service, for a period of not less than 90 hours or one month, whichever is greater, at the unit for which the rating is sought;
 - 2.7.4.5.2.1.2.2 approach, approach radar, area or area radar control rating: the control service for which the rating is sought, for a period of not less than 180 hours or three months, whichever is greater, at the unit for which the rating is sought; and

2.7.4.5.2.1.2.3 approach precision radar control rating: not less than 200 precision approaches of which not more than 100 shall have been carried out on a radar simulator approved for that purpose by the Authority. Not less than 50 of those precision approaches shall have been carried out at the unit and on the equipment for which the rating is sought; and

2.7.4.5.2.1.3 if the privileges of the approach radar control rating include surveillance radar approach duties, the experience shall include not less than 25 plan position indicator (PPI) approaches on the surveillance equipment of the type in use at the unit for which the rating is sought and under the supervision of an appropriately rated approach radar controller.

(2) The experience specified under (ii) shall have been completed within the 6-month period immediately preceding application.

2.7.4.5.3 **Skill.** The applicant shall have demonstrated by passing the required skill test, at a level appropriate to the privileges being granted, the skill, judgement and performance required to provide a safe orderly and expeditious control service.

2.7.4.5.4 **Privileges.**

(1) Subject to compliance with the requirements specified in this Part, the privileges of the holder of an air traffic controller licences

2.7.4.5.4.1.1 aerodrome control rating: to provide or to supervise the provision of aerodrome control service for the aerodrome for which the licences holder is rated;

2.7.4.5.4.1.2 approach control rating: to provide or to supervise the provision of approach control service for the aerodrome or aerodromes for which the licences holder is rated, within the airspace or portion thereof, under the jurisdiction of the unit providing approach control service;

2.7.4.5.4.1.3 approach radar control rating: to provide and/or supervise the provision of approach control service with the use of radar or other surveillance systems for the aerodrome or aerodromes for which the licences holder is rated, within the airspace or portion thereof, under the jurisdiction of the unit providing approach control service;

2.7.4.5.4.1.3.1 subject to compliance with the provisions of (b)(1)(iii), the privileges shall include the provision of surveillance radar approaches;

2.7.4.5.4.1.4 approach precision radar control rating: to provide and/or supervise the provision of precision approach radar service at the aerodrome for which the licences holder is rated;

2.7.4.5.4.1.5 area control rating: to provide and/or supervise the provision of area control service within the control area or portion thereof, for which the licences holder is rated; and

2.7.4.5.4.1.6 area radar control rating: to provide and/or supervise the provision of area control service with the use of radar, within the control area or portion thereof, for which the licences holder is rated.

(2) Before exercising the privileges indicated in (d)(1), the licences holder shall be familiar with all pertinent and current information.

2.7.4.5.5 **Validity of ratings.** A rating shall become invalid when an air traffic controller has ceased to exercise the privileges of the rating for a period of 6 months. A rating shall remain invalid until the controller's ability to exercise the privileges of the rating has been re-established.

2.8 FLIGHT OPERATIONS OFFICER LICENCES

2.8.1 Applicability

This section prescribes the requirements for the issue, renewal and re-issue of a flight operations officer licences.

2.8.1 General

2.8.1.5.1 An applicant shall, before being issued with an flight operations officer licences, meet such requirements in respect of age, knowledge, experience, skill, medical fitness and language proficiency as are specified for that licences.

2.8.1.5.2 An applicant shall for renewal or re-issue of a licences meet the requirements as are specified for that licences.

Note: The licences can also be specified as Flight dispatcher licences.

2.8.2 Flight operations officer licences

2.8.2.5.1 Age. The applicant for a flight operations officer licences shall be not less than 21 years of age.

2.8.2.5.2 Knowledge. The applicant for a flight operations officer licences shall

(1) receive an approved training course from an authorized instructor on the knowledge areas:

2.8.2.5.2.1.1 Air Law: rules and regulations relevant to the holder of a flight operations

ii. officer licences; appropriate air traffic services practices and procedures;

2.8.2.5.2.1.2 Aircraft general knowledge:

2.8.2.5.2.1.2.1 principles of operation of aeroplane powerplants, systems and instruments

2.8.2.5.2.1.2.2 operating limitations of aeroplanes and powerplants;

2.8.2.5.2.1.2.3 minimum equipment list;

2.8.2.5.2.1.3 Flight performance calculation and planning procedures:

2.8.2.5.2.1.3.1 effects of loading and mass distribution on aircraft performance and flight characteristics; mass and balance calculations;

2.8.2.5.2.1.3.2 operational flight planning; fuel consumption and endurance calculations; alternate airport selection procedures; enroute cruise control; extended range operation;

2.8.2.5.2.1.3.3 preparation and filing of air traffic services flight plans;

2.8.2.5.2.1.3.4 basic principles of computer-assisted planning systems;

2.8.2.5.2.1.4 Human performance: human performance relevant to dispatch duties;

2.8.2.5.2.1.5 Meteorology

2.8.2.5.2.1.5.1 aeronautical meteorology; the moment of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, enroute and landing conditions;

2.8.2.5.2.1.5.2 interpretation and application of aeronautical meteorological reports, charts and forecasts, codes and abbreviations; use of, and procedures for obtaining, meteorological information;

2.8.2.5.2.1.6 Navigation:

2.8.2.5.2.1.7 Operational procedures:

2.8.2.5.2.1.7.1 use of aeronautical documentation;

2.8.2.5.2.1.7.2 operational procedures for the carriage of freight and dangerous goods;

2.8.2.5.2.1.7.3 procedures relating to aircraft accidents and incidents; emergency flight procedures;

2.8.2.5.2.1.7.4 procedures relating to unlawful interference and sabotage of aircraft;

2.8.2.5.2.1.8 Principles of flight: principles of flight relating to the appropriate category of aircraft;

2.8.2.5.2.1.9 Radio communication: procedures for communicating with aircraft and relevant ground stations;

2.8.2.5.2.1.10 Principles and procedures relating to threat and error management
(2) have received an endorsement for the knowledge test from an authorized instructor who:

2.8.2.5.2.2.1 conducted the training on the knowledge areas;

2.8.2.5.2.2.2 certifies that the person is prepared for the required knowledge test; and

(3) pass the required knowledge test.

2.8.2.5.3 Experience.

(1) The applicant for a flight operations officer licences shall have gained the following experience:

2.8.2.5.3.1.1 a total of 2 years' service in any one or in any combination of the capacities specified in (A) to (C) inclusive, provided that in any combination of experience the period serviced in any capacity shall be at least one year:

2.8.2.5.3.1.1.1 a flight crew member in air transportation; or

2.8.2.5.3.1.1.2 a meteorologist in an organization dispatching aircraft in air transportation; or

2.8.2.5.3.1.1.3 an air traffic controller; or a technical supervisor of flight operations officers or air transportation flight operations systems; or

2.8.2.5.3.1.2 at least one year as an assistant in the dispatching of air transport; or

2.8.2.5.3.1.3 have satisfactorily completed a course of approved training.

(2) The applicant shall have served under the supervision of a flight operations officer for at least 90 working days within the 6 months immediately preceding the application.

2.8.2.5.4 Skill. The applicant shall have demonstrated the ability to:

(1) make an accurate and operationally acceptable weather analysis from a series of daily weather maps and weather reports; provide an operationally valid briefing on weather conditions prevailing in the general neighbourhood of a specific air route; forecast weather trends pertinent to air transportation with particular reference to destination and alternates;

(2) determine the optimum flight path for a given segment, and create accurate manual and/or computer generated flight plans; and

(3) provide operating supervision and all other assistance to a flight in actual or simulated adverse weather conditions as appropriate to the duties of the holder of a flight operations officer licences.

2.8.2.5.5 Privileges. Subject to compliance with the requirements specified in this Part, the privileges of the holder of a flight operations officer licences shall be to serve in that capacity with responsibility for each area for which the applicant meets the requirements of Part 8 and 9 of these regulations.

2.8.2.5.6 Validity. The validity period of the licences is 10 years. A licences shall become invalid when a flight operations officer has ceased to exercise the privileges of the licences for a period of 6 months. A licences shall remain invalid until the flight operations officer's ability to exercise the privileges of the licences has been re-established. For renewal of the licences see 2.2.3.

2.8.3 Instructors for Flight Operations Officers

2.8.4.1 Requirements for Flight operations officer Instructor Licences

2.8.3.5.1 Age. An applicant for Flight Operations Officer instructor licences and rating shall be at least 21 years of age.

2.8.3.5.2 Knowledge.

(1) An applicant for a Flight Operations Officer instructor licences shall have met the instructor requirements in 2.2.6 of this part; and

(2) Any additional requirements as may be specified by the Authority.

2.8.3.5.3 Experience. The applicant for a Flight Operations Officer instructor licences shall hold at least a current and valid Flight Operations Officer licences and have a minimum of three years' experience as a Flight Operations Officer.

2.8.3.5.4 Privileges. The privileges of a Flight Operations Officer instructor licences are to give instruction to Flight Operations Officer licences applicants and to endorse those applicants for a knowledge or skill test as applicable.

2.8.3.5.5 Validity. Subject to compliance with the requirements specified in this Part, the validity period of the Flight Operations Officer instructor licences is 2 years.

2.8.3.5.6 Renewal. A Flight Operations Officer instructor licences that has not expired may be renewed for an additional 24 calendar months if the holder presents to the Authority evidence that he/she has within the past 12 months preceding the expiry date —

(1) Conducted at least six exercises in an approved course for a Flight Operations Officer licences; or

(2) Received refresher training acceptable to the Authority.

2.8.3.5.7 Reissue. If the Flight Operations Officer instructor licences has expired, the applicant shall have received refresher training acceptable to the Authority.

2.8.5 DESIGNATED EXAMINERS FOR FLIGHT OPERATION OFFICERS

2.8.5.1 GENERAL REQUIREMENTS

(a) **Age.** An applicant for a flight operations officer examiner license shall be at least 23 years of age.

(b) General Eligibility.

(1) Show evidence of a high level of aeronautical knowledge in the subject areas for the Flight Operations Officer (FOO) certification.

(2) Have held a FOO license for at least five years prior to the designation.

(3) Have been actively exercising the privileges of the FOO license in commercial air transport in the previous three years.

(4) Have a good record as a FOO and a person engaged in the industry and community with a reputation for hones and dependability.

(5) Have satisfactorily completed the FOO examiner orientation program with the Authority.

(6) The applicant must have available a test site that is fully capable of doing all items required for the proper dispatch of a commercial flight in accordance with the regulatory requirements. This may be the Flight Operations Office of an active commercial airline.

2.8.5.2 Knowledge

(a) The applicant shall have passed a pre-designation test on the following:

(1) Air Law and Regulations for FOO personnel.

(2) Aircraft knowledge on the aircraft used for testing.

(3) Flight performance calculation and planning procedures.

(4) Human performance.

(5) Meteorology.

(6) Navigation.

(7) Radio communication.

(8) Recent changes in technology to include fly by wire aircraft systems, GPS navigation, required navigation performance (RNP) requirements, TCAS, ADS-B, as well and Enhanced Wind Shear Systems.

(9) Principles and Procedures relating to Threat and Error Management

2.8.5.3 Skill

- (a) The Authority shall observe the applicant conducting a complete actual FOO certification using the approved STS in a satisfactory manner.
- (b) The applicant shall complete all required paper work for the certification as required by the Authority.

2.8.5.4 Currency

- (c) After designation, a FOO examiner shall maintain currency by
 - (1) Attending initial and recurrent training conducted by the Authority, and
 - (2) Maintaining a current and valid FOO licences.
- (d) The FOO examiner shall conduct at least 6 skill tests during any 12 calendar month period in order for the designation to remain current.
- (e) The FOO examiner shall be observed by the Authority in the conduct of a skill test at least once each 12 calendar months.

2.8.5.5 Privileges

- (a) The FOO examiner may conduct Skill test for the Flight Operation Officer license in accordance with approved STS standard.
- (b) The FOO examiner may conduct or monitor any portion of a computerized knowledge test.

2.8.5.6 Validity

- (a) The FOO examiner licences shall be valid for one year.

2.8.5.7 Renewal

- (a) The FOO examiner designation may be renewed by the Authority if:
 - (1) The need for the designation remains valid;
 - (2) The performance of the examiner has been satisfactory;

2.9 AERONAUTICAL STATION OPERATOR LICENCES

2.9.1 Applicability

This section prescribes the requirements for the issue, renewal or re-issue of an aeronautical station operator licences.

2.9.1 General

- 2.9.1.5.1 An applicant shall, before being issued with an aeronautical station operator licences, meet such requirements in respect of age, knowledge, experience, skill, medical fitness and language proficiency as are specified for that licences.
- 2.9.1.5.2 An applicant shall for renewal or re-issue of a licences, rating or authorization meet the requirements as are specified for that licences.

2.9.2 Aeronautical station operator licences

2.9.2.5.1 Age. The applicant for an aeronautical station operator licences shall be not less than 18 years of age.

2.9.2.5.2 Knowledge. The applicant for an aeronautical station operator licences shall:

- (1) receive and log ground training from an authorized instructor on the following subjects:

2.9.2.5.2.1.1 General Knowledge: air traffic services provided within Sierra Leone;

- 2.9.2.5.2.1.2 Language: the language or languages nationally designated for use in air-ground communications and ability to speak such language or languages without accent or impediment which would adversely affect radio communication;
- 2.9.2.5.2.1.3 Operational Procedures: radiotelephony procedures; phraseology; telecommunication network;
- 2.9.2.5.2.1.4 Rules and regulations: rules and regulations applicable to the aeronautical station operator;
- 2.9.2.5.2.1.5 Telecommunication equipment: principles, use and limitations of telecommunication equipment in an aeronautical station
- (2) have received an endorsement for the knowledge test from an authorized instructor who:
- 2.9.2.5.2.2.1 conducted the training on the knowledge areas;
- 2.9.2.5.2.2.2 certifies that the person is prepared for the required knowledge test; and
- (3) pass the required knowledge test.
- 2.9.2.5.3 Experience.** The applicant for an aeronautical station operator licences shall have:
- 2.9.2.5.3.1.1 satisfactorily completed an approved training course within the 12-month period immediately preceding application, and have served satisfactorily under a qualified aeronautical station operator for not less than 2 months; or
- 2.9.2.5.3.1.2 Satisfactorily served under a qualified aeronautical station operator for not less than 6 months during the 12-month period immediately preceding application.
- 2.9.2.5.4 Skill.** The applicant for an aeronautical station operator licences shall demonstrate, or have demonstrated, competency in:

- 2.9.2.5.4.1.1 operating the telecommunication equipment in use; and
- 2.9.2.5.4.1.2 transmitting and receiving radiotelephony messages with efficiency and accuracy.
- 2.9.2.5.5 Privileges.** Subject to compliance with the requirements specified in this Part, the privileges of the holder of an aeronautical station operator licences shall be to act as an operator in an aeronautical station. Before exercising the privileges of the licences, the holder shall be familiar with all pertinent and current information regarding the types of equipment and operating procedures used at that aeronautical station.
- 2.9.2.5.6 Validity:** The validity period of the licences is 10 years. A licences shall become invalid when an aeronautical station operator has ceased to exercise the privileges of the licences for a period of 6 months. A licences shall remain invalid until the aeronautical station operator's ability to exercise the privileges of the licences has been re-established. For renewal of the licences see 2.2.3.
- 2.9.3 Aeronautical Meteorological Personnel
- 2.9.3.5.1 The Authority shall require all aeronautical meteorological personnel to be trained and qualified in accordance with the Guidelines set forth in WMO Document 258, vol 1. The education and training of aeronautical personnel in meteorology and operational hydrology is the responsibility of the World Meteorological Organisation (WMO) as outlined in the Working Arrangements between the International Civil Aviation Organisation and the WMO (Doc 7475).

2.10 MEDICAL PROVISIONS FOR LICENSING

2.10.1 GENERAL

2.10.1.1 Applicability

This Section prescribes the requirements and procedures for issuing, renewing and re-issuing Class 1, Class 2 and Class 3 medical certificates.

2.10.1.2 MEDICAL FITNESS

- (a) The applicants for a flight crew licences and air traffic controller licences shall hold a medical certificate issued in accordance with this Part.
- (b) The flight crew members or air traffic controllers shall not exercise the privileges of their licences unless they hold a current medical certificate appropriate to the licences.

2.10.1.3 AVIATION MEDICAL EXAMINERS (AME)

- (a) Subject to compliance with the requirements specified in this Part, the Authority will designate and authorize qualified and licensed physicians in the practice of medicine, to be authorized as an AME and conduct medical examinations of fitness of applicants for the issue, renewal or re-issue of the licences or ratings specified in this Part. AMEs may be designated outside of Sierra Leone.
- (b) AMEs shall have had, or shall receive:
 - (1) Basic training in aviation medicine for Class 2 and 3 medical examinations on the subjects listed in IS 2.10.1.3 Appendix A; and
 - (2) Advance training in aviation medicine for Class 1 medical examinations on the subjects listed in IS 2.10.1.3 Appendix B.
- (c) AMEs should acquire knowledge and experience of the conditions in which the holders of licences and ratings carry out their duties.
- (d) The authorization of an AME is valid for 2 years. The AME shall have completed at least 10 examinations for a medical certificate per year. Re-authorization will be at the discretion of the Authority.
- (e) Having completed the medical examination of an applicant

in accordance with this Section, the AME shall submit a signed report to the Authority], detailing the results of the examination.

- (f) If the medical examination is carried out by a constituted group of AMEs, the head of the group will be appointed by the Authority, who will be responsible for coordinating the results of the examination and signing the report.
- (g) The Authority will use the services of physicians experienced in the practice of aviation medicine, when it is necessary to evaluate reports submitted to the Authority by medical examiners.
- (h) The Authority retains the right to reconsider any action of an AME.

2.10.1.4 AVIATION MEDICAL EXAMINATIONS

- (a) Applicants for licences or ratings for which medical fitness is prescribed shall sign and furnish to the AME a declaration stating whether they have previously undergone such an examination and, if so, with what result.
- (b) Each applicant for a medical certificate shall provide the AME with a personally certified statement of medical facts concerning personal, familial and hereditary history.
- (c) Each applicant for a medical certificate shall produce proof of identification.
- (d) Any false declaration to an AME made by an applicant for a licence or rating shall be reported to the Authority for such action as may be considered appropriate.
- (e) The applicant shall complete the appropriate application form as detailed in IS 2.10.1.4.

2.10.1.5 SPECIAL CIRCUMSTANCES

- (a) If the medical requirements prescribed in Part 2 for a particular licences are not met, the appropriate medical certificate will not be issued, renewed or re-issued unless the following conditions are fulfilled:

(1) accredited medical conclusion indicates that in special circumstances the applicant's failure to meet any requirement, whether numerical or otherwise, is such that exercise of the privileges of the licences applied for is not likely to jeopardize flight safety;

(2) relevant ability, skill and experience of the applicant and operational conditions have been given due consideration; and

(3) the licences is endorsed by the Authority with any special limitation or limitations when the safe performance of the licences holder's duties is dependent on compliance with such limitation or limitations.

- (b) The AME shall report to the Authority any individual case where, in the AME's judgement, an applicant's failure to meet any requirement, whether numerical or otherwise, is such that exercise of the privileges of the licences being applied for, or held, is not likely to jeopardize flight safety.

2.10.1.6 DECREASE OF MEDICAL FITNESS

Holders of licences provided for in this Part shall not exercise the privileges of their licences and related ratings at any time when they are aware of any decrease in their medical fitness which might render them unable to safely and properly exercise these privileges.

2.10.1.7 USE OF PSYCHO ACTIVE SUBSTANCES

- (a) Holders of licences provided for in this Part shall not exercise the privileges of their licences and related ratings while under the influence of any psychoactive substance which might render them unable to safely and properly exercise these privileges.

- (b) Holders of licences provided for in this Part shall not engage in any problematic use of substances.

Note: See ICAO Manual on Prevention of Problematic Use of Substances in the Aviation Workplace (Doc 9654)

2.10.1.8 MEDICAL CERTIFICATES

- (a) The medical certificate shall be in a form and manner prescribed by the Authority. The items required on the licences are indicated in IS 2.2.10.

(b) *Issue of medical certificates*

(1) A medical certificate will be issued to any person who meets the medical requirements prescribed in this Subpart, based on medical examination and evaluation of the applicant's history and condition.

(i) The Authority will issue the Class 1 medical certificate.

(ii) The issue of Class 2 and 3 medical certificates may be delegated to the authorized Aviation Medical Examiner.

(2) Each person to be issued a medical certificate shall undergo a medical examination based on the physical and mental requirements contained in this Subpart.

(3) Any person who does not meet the medical requirements of this Subpart may apply for the discretionary issuance of a certificate under 2.10.1.5.

(c) *Validity:*

(1) The validity period of the medical certificate is:

(i) 12 months for the Class 1 for the CPL, ATPL and flight engineer licences.

(ii) 24 months for the Class 2 for the PPL, glider pilot licences and free balloon pilot licences

- (iii) 24 months for the Class 3 for the air traffic controller licences;
- (iv) When the holders have passed their 40th birthday:
 - (A) the 24th month interval specified for the PPL, glider pilot licences, free balloon and air traffic controller licences will be reduced to 12 months; and
 - (B) the 12 month interval specified for the CPL and ATPL will be reduced to 6 months.

(2) For initial issuance of the medical certificate, the period of validity shall begin on the date the medical examination is performed. For any renewal or re-issuance of a medical certificate, based on a medical examination that takes place during the period of validity of the current medical certificate, but no more than 28 days before its expiry date, the new period of validity shall begin on that date. For any renewal or re-issuance, based on a medical examination taking place after the expiry date or earlier than 28 days before the expiry date, the new period of validity shall begin on the date of the examination.

(d) ***Renewal or re-issue of a medical certificate***

(1) The requirements to be met for the renewal or re-issue of a medical certificate are the same as those for the initial certificate except where otherwise specifically stated.

(2) The renewal of the Class 1, 2 and 3 medical certificates may be delegated to the authorized Aviation Medical Examiner.

(3) Re-issue of the Class 1 medical certificate will be done by the Authority.

(4) Re-issue of the Class 2 and 3 medical certificates may be delegated to the authorized Aviation Medical Examiner.

(e) ***Limitation or denial***

(1) The Authority may for medical reasons justified and notified to the applicant limit or deny a medical certificate.

(f) ***Suspension or revocation of a medical certificate***

(1) The Authority may in accordance with 2.2.11 suspend or revoke a medical certificate issued, if it is established that an applicant or a certificate holder has not met, or no longer meets the requirements of Part 2.

2.10.2 MEDICAL REQUIREMENTS

2.10.2.1 REQUIREMENTS FOR MEDICAL CERTIFICATES

2.10.2.1.1 GENERAL

An applicant for a Medical Certificate issued in accordance with this Part, shall undergo a medical examination based on the following requirements:

- (a) physical and mental;
- (b) visual and colour perception; and
- (c) hearing.

2.10.2.1.2 PHYSICAL AND MENTAL REQUIREMENTS

An applicant for any class of Medical Assessment shall be required to be free from:

- (a) any abnormality, congenital or acquired; or
- (b) any active, latent, acute or chronic disability; or
- (c) any wound, injury or sequelae from operation; or
- (d) any effect or side-effect of any prescribed or non-prescribed therapeutic medication taken; such as would entail a degree of functional incapacity which is likely to interfere with the safe operation of an aircraft or with the safe performance of duties.

2.10.2.1.3 VISUAL ACUITY TEST REQUIREMENTS

- (a) Visual acuity tests must be conducted in an environment with a level of illumination that corresponds to ordinary office illumination (30-60cd/m²).
- (b) Visual acuity must be measured by means of a series of Landolt rings or similar optotypes, placed at a distance from the applicant appropriate to the method of testing adopted.

2.10.2.1.4 COLOUR PERCEPTION REQUIREMENTS

- (a) The applicant shall be required to demonstrate the ability to perceive readily those colours the perception of which is necessary for the safe performance of duties.
- (b) The applicant shall be tested for the ability to correctly identify a series of pseudoisochromatic plates in daylight or in artificial light of the same colour temperature such as that provided by CIE standard illuminants C or D65 as specified by the International Commission of Illumination (CIE).
- (c) An applicant obtaining a satisfactory result as prescribed by the Authority shall be assessed as fit. An applicant failing to obtain a satisfactory result in such a test shall be assessed as unfit unless able to readily distinguish the colours used in air navigation and correctly identify aviation coloured lights. Applicants who fail to meet these criteria shall be assessed as unfit except for Class 2 assessment with the following restriction: valid daytime only.

2.10.2.1.5 HEARING REQUIREMENTS

Hearing requirements are established in addition to the ear examination conducted during the medical examination for the physical and mental requirements.

- (b) The applicant shall be required to be free from any hearing defect that would interfere with the safe performance of duties in exercising the privileges of the licences.

Note 1: The reference zero for calibration of pure-tone audiometers used for applying 2.10.2.2.4 (a) and 2.10.2.4.4 (a) is that of the International Organization for Standardization (ISO) Recommendation R389, 1964.

Note 2: The frequency composition of the background noise referred to in 2.10.2.4 (a)(1) and 2.10.2.4.4.(a)(1) is defined only to the extent that the frequency range 600 to 4 800 Hz is adequately represented.

Note 3: In the choice of speech material, aviation-type material is not to be used exclusively for the above tests. Lists of phonetically balanced words in use by a number of Contracting States have given satisfactory results.

Note 4: A quiet room for the purposes of testing the hearing requirements is a room in which the intensity of the background noise is less than 50 dB when measured on “slow” response of an “A”-weighted sound level meter.

Note 5: For the purposes of hearing requirements, the sound level of an average conversational voice at point of output ranges from 85 to 95 dB.

2.10.2.2 MEDICAL CERTIFICATE

2.10.2.2.1 CERTIFICATE ISSUE AND RENEWAL

- (a) An applicant for a CPL, ATPL, Flight Engineer or Flight Navigator licences shall undergo an initial medical examination for the issue of a Class 1 Medical Certificate.
- (b) Except where otherwise stated in this subpart, holders of CPL, ATPL, Flight Engineer or Flight Navigator licences shall have their Class 1 Medical Certificate renewed at intervals not exceeding those specified in 2.10.1.8. (b).

- (c) A Class 1 Medical Certificate will be issued when the applicant complies with the requirements of this Part.

2.10.2.2.2 PHYSICAL AND MENTAL REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The applicant shall not suffer from any disease or disability which could render that applicant likely to become suddenly unable either to operate an aircraft safely or to perform assigned duties safely.
- (b) The applicant shall have no established medical history or clinical diagnosis of:
- (1) a psychosis;
 - (2) alcoholism;
 - (3) drug dependence;
 - (4) any personality disorder, particularly if severe enough to have repeatedly resulted in overt acts;
 - (5) a mental abnormality, or neurosis of a significant degree; such as might render the applicant unable to safely exercise the privileges of the licences applied for or held, unless accredited medical conclusion indicates that in special circumstances, the applicant's failure to meet the requirement is such that exercise of the privileges of the licences applied for is not likely to jeopardize flight safety.
- (c) The applicant should have no established medical history or clinical diagnosis of any mental abnormality, personality disorder or neurosis which according to accredited medical conclusion, makes it likely that within two years of the examination the applicant will be unable to safely exercise the privileges of the licences or rating applied for or held.

Note: A history of acute toxic psychosis need not be regarded as disqualifying, provided that the applicant has suffered no permanent impairment.

- (d) The applicant shall have no established medical history or clinical diagnosis of any of the following:

- (1) a progressive or non-progressive disease of the nervous system, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licences and rating privileges;
- (2) epilepsy;
- (3) any disturbance of consciousness without satisfactory medical explanation of cause;
- (e) Cases of head injury, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.
- (f) The applicant shall not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licences and rating privileges. A history of proven myocardial infarction shall be disqualifying.

Note: Such commonly occurring conditions as respiratory arrhythmia, occasional extrasystoles which disappear on exercise, increase of pulse rate from excitement or exercise, or a slow pulse not associated with auriculoventricular dissociation may be regarded as being within "normal" limits.

- (1) Electrocardiography shall form part of the heart examination for the first issue of a licences and shall be included in re-examination of applicants between the ages of 30 and 40 no less frequently than every two years, and thereafter no less frequently than annually.

Note 1: The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.

Note 2: Guidance on resting and exercise electrocardiography is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (g) The systolic and diastolic blood pressures shall be within normal limits.

Note1: The use of drugs for control of high blood pressure is disqualifying except for those drugs, the use of which, according to accredited medical conclusion is compatible with the safe exercise of the applicant's licences and rating privileges.

Note2: Extensive guidance on the subject is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (h) There shall be no significant functional nor structural abnormality of the circulatory tree.
- (i) There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

(1) Radiography should form a part of the initial chest examination and should be repeated periodically thereafter.

- (j) Any extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude shall be assessed as unfit.
- (k) Cases of pulmonary emphysema should be assessed as unfit if the condition is causing symptoms.
- (l) Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

Note1: Guidance material on assessment of respiratory diseases is published in the Manual of Civil Aviation Medicine (Doc 8984).

Note2: Guidance material on hazards of the medications is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (m) Cases of disabling disease with important impairment of function of the gastrointestinal tract or its adnexae shall be assessed as unfit.
- (n) The applicant shall be required to be completely free from those hernias that might give rise to incapacitating symptoms.
- (o) Any sequelae of disease or surgical intervention on any part of the digestive tract or its adnexae, likely to cause incapacity in flight, in particular any obstructions due to structure or compression shall be assessed as unfit.

(1) An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, which has involved a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical Authority designated for the purpose by Sierra Leone and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.

- (p) Cases of metabolic, nutritional or endocrine disorders likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.
- (q) Proven cases of diabetes mellitus shown to be satisfactorily controlled without the use of any anti-diabetic drug, may be assessed as fit.
- (r) Cases of severe and moderate enlargement of the spleen persistently below the costal margin shall be assessed as unfit.
- (s) Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit, except in cases where accredited medical conclusion indicates that the condition is not likely to affect the safe exercise of the applicant's licences and rating privileges.

(1) Possession of the sickle cell trait should not be a reason for disqualification unless there is positive medical evidence to the contrary.

(2) Cases in (r) due to a transient condition should be assessed as only temporarily unfit.

(t) Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be of pathological significance. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.

(u) Any sequelae of disease or surgical procedures on the kidneys and the urinary tract likely to cause incapacity, in particular any obstructions due to stricture or compression shall be assessed as unfit. Compensated nephrectomy without hypertension or uremia may be assessed as fit.

(1) An applicant who has undergone a major surgical operation on the urinary system which has involved a total or partial excision or a diversion of any of its organs should be assessed as unfit until such time as the medical Authority designated for the purpose by Sierra Leone and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.

(v) An applicant for the first issue of a licences who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the AME, that the applicant has undergone adequate treatment.

(w) Applicants who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.

(x) Pregnancy shall be cause of temporary unfitness.

(1) In the absence of significant abnormalities, accredited medical conclusion may indicate fitness during the middle months of pregnancy.

(y) Following confinement or termination of pregnancy, the applicant shall not be permitted to exercise the privileges of her licences until she has undergone re-examination and has been assessed as fit.

(z) Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. Functions after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe exercise of the applicants licences and rating privileges may be assessed as fit.

(aa) There shall be:

(1) no active pathological process, acute or chronic, of the internal ear or of the middle ear;

(2) no unhealed (unclosed) perforation of the tympanic membranes. A single dry perforation need not render the applicant unfit. Licences shall not be issued or renewed in these circumstances unless the appropriate hearing requirements in 2.10.2.2.4 are complied with;

(3) no permanent obstruction of the Eustachian tubes;

(4) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note: The details of the hearing requirements are set out in 2.10.2.4.

(bb) There shall be free nasal air entry on both sides. There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract. Cases of speech defects and stuttering shall be assessed as unfit.

2.10.2.2.3 VISUAL REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The function of the eyes and their adnexa shall be normal. There shall be no active pathological condition, acute or chronic, nor any sequelae of surgery or trauma of the eyes or their adnexa likely to reduce proper visual function to an extent that would interfere with the safe exercise of the applicant's licences and rating privileges.
- (b) Distant visual acuity with or without correction shall be 6/9 or better in each eye separately, and binocular visual acuity shall be 6/6 or better. No limits apply to uncorrected visual acuity. Where this standard of visual acuity can be obtained only with correcting lenses, the applicant may be assessed as fit provided that:

(1) such correcting lenses are worn during the exercise of the privileges of the licences or rating applied for or held; and

(2) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licences.

Note 1: Item (2) is the subject of Standards in Annex 6, Part 1.

Note2: An applicant accepted as meeting these provisions is deemed to continue to do so unless there is reason to suspect otherwise, in which case an ophthalmic report is required at the discretion of the Authority. Both uncorrected and correct visual acuity are normally measured and recorded at each re-examination. Conditions which indicate a need to obtain an ophthalmic report include: a substantial decrease in the uncorrected visual acuity; any decrease in best corrected visual acuity, and the occurrence of eye disease, eye injury or eye surgery.

- (c) Applicants may use contact lenses to meet the requirement of (b) provided that:

(1) the lenses are monofocal and non-tinted;

(2) the lenses are well tolerated; and

(3) a pair of suitable correcting spectacles is kept readily available during the exercise of the licences privileges.

Note: Applicants who use contact lenses may not need to have their uncorrected visual acuity measured at each re-examination provided the history of their contact lens prescription is known.

- (d) Applicants with a large refractive error shall use contact lenses or high-index spectacle lenses.

Note: If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.

(1) Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 shall be required to provide a full ophthalmic report prior to initial Medical certificate and every five years thereafter.

Note 1: The purpose of the required ophthalmic examination is 1) to ascertain normal visual performance and 2) to identify any significant pathology.

Note2: Guidance on the assessment of monocular applicants under the provisions of 2.10.1.5 Is contained in the Manual of Civil Aviation Medicine (Doc 8984).

- (e) Applicants who have undergone surgery affecting the refractive status of the eye shall be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licences and rating privileges.

- (f) The applicant shall have the ability to read, while wearing the correcting lenses, if any, required by (b), the N5 chart or its equivalent at a distance selected by that applicant in the range of 30 to 50 cm and the ability to read the N14 chart or its equivalent at a distance of 100 cm. If this requirement is met only by the use of near correction, the applicant may be assessed as fit provided that this near correction is added to the spectacle correcting already

prescribed in accordance with (b); if no such correction is prescribed, a pair of spectacles for near use shall be kept readily available during the exercise of the privileges of the licences. When near correction is required, the applicant shall demonstrate that one pair of spectacles is sufficient to meet both distant and near visual requirements.

Note 1: N5 and N14 refer to the size of typeface used. For further details, see the Manual of Civil Aviation Medicine (Doc 8984).

Note 2: Any applicant who needs near correction to meet this requirement will require “look-over”, bifocal or perhaps multifocal lenses in order to read the instruments and a chart or manual held in the hand, and also to make use of distant vision, through the windscreen, without removing the lenses. Single-vision near correction (full lenses of one power only, appropriate for reading) significantly reduces distant visual acuity and is therefore not acceptable.

Note 3: Whenever there is a requirement to obtain or renew correcting lenses, an applicant is expected to advise the refractionist of reading distances for the visual flight deck tasks relevant to the types of aircraft in which the applicant is likely to function.

(1) When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles shall be kept available for immediate use.

- (g) The applicant shall be required to have normal fields of vision.
- (h) The applicant shall be required to have normal binocular function.

Note: Defective stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may not be disqualifying.

2.10.2.2.4 HEARING REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The applicant, tested on a pure-tone audiometer at first issue of licences, not less than once every five years up to the age of 40 years, and thereafter not less than once every three years, shall not have a hearing loss in either ear separately, of more than 35 dB at any of the frequencies 500, 1 000 or 2 000 Hz, or more than 50 dB at 3 000 Hz. However, an applicant with a hearing loss greater than the above may be declared fit provided that:
 - (1) the applicant has a hearing performance in each ear separately equivalent to that of a normal person, against a background noise that will simulate the masking properties of flight deck noise upon speech and beacon signals; and
 - (2) the applicant has the ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 2 m from the examiner, with the back turned to the examiner.

- (b) Alternatively, other methods providing equivalent results to those specified in (a) shall be used.

2.10.2.3 CLASS 2 MEDICAL CERTIFICATE

2.10.2.3.1 CERTIFICATE ISSUE AND RENEWAL

- (a) An applicant for a PPL, a Glider Pilot licences or a Free balloon Pilot licences shall undergo an initial medical examination for the issue of a Class 2 Medical Certificate.
- (b) Except where otherwise stated in this subpart, holders of a PPL, a Glider Pilot licences or a Free balloon Pilot licences shall have their Class 2 Medical Certificate renewed at intervals not exceeding those specified in 2.10.1.8. (b).
- (c) A Class 2 Medical Certificate will be issued when the applicant complies with the requirements of this Part.

2.10.2.3.2 PHYSICAL AND MENTAL REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The applicant shall not suffer from any disease or disability which could render that applicant likely to become suddenly unable either to operate an aircraft safely or to perform assigned duties safely.
- (b) The applicant shall have no established medical history or clinical diagnosis of:
 - (1) a psychosis;
 - (2) alcoholism;
 - (3) drug dependence;
 - (4) any personality disorder, particularly if severe enough to have repeatedly resulted in overt acts;
 - (5) a mental abnormality, or neurosis of a significant degree;
 - (6) such as might render the applicant unable to safely exercise the privileges of the licences applied for or held, unless accredited medical conclusion indicates that in special circumstances, the applicant's failure to meet the requirement is such that exercise of the privileges of the licences applied for is not likely to jeopardize flight safety.
- (c) The applicant should have no established medical history or clinical diagnosis of any mental abnormality, personality disorder or neurosis which according to accredited medical conclusion, makes it likely that within two years of the examination the applicant will be unable to safely exercise the privileges of the licences or rating applied for or held.

Note: A history of acute toxic psychosis need not be regarded as disqualifying, provided that the applicant has suffered no permanent impairment.

- (d) The applicant shall have no established medical history or clinical diagnosis of any of the following:
 - (1) a progressive or non-progressive disease of the nervous system, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licences and rating privileges;
 - (2) epilepsy;
 - (3) any disturbance of consciousness without satisfactory medical explanation of cause;
 - (e) Cases of head injury, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.
 - (f) The applicant shall not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licences and rating privileges. A history of proven myocardial infarction shall be disqualifying.

Note: Such commonly occurring conditions as respiratory arrhythmia, occasional extrasystoles which disappear on exercise, increase of pulse rate from excitement or exercise, or a slow pulse not associated with auriculoventricular dissociation may be regarded as being within "normal" limits.

- (g) Electrocardiography should form part of the heart examination for the first issue of a licences, at the first re-examination after the age of 40 and thereafter no less frequently than every five years, and in re-examinations in all doubtful cases.

Note 1: The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.

Note 2: Guidance on resting and exercise electrocardiography is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (h) The systolic and diastolic blood pressures shall be within normal limits.

Note 1: The use of drugs for control of high blood pressure is disqualifying except for those drugs, the use of which, according to accredited medical conclusion is compatible with the safe exercise of the applicant's licences and rating privileges.

Note 2: Extensive guidance on the subject is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (i) There shall be no significant functional nor structural abnormality of the circulatory tree. The presence of varicosities does not necessarily entail unfitness.
 - (j) There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.
- (1) Radiography should form a part of the initial chest examination and should be repeated periodically thereafter.
- (k) Any extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude shall be assessed as unfit.
 - (l) Cases of pulmonary emphysema should be assessed as unfit if the condition is causing symptoms.
 - (m) Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

Note 1: Guidance material on assessment of respiratory diseases is published in the Manual of Civil Aviation Medicine (Doc 8984).

Note 2: Guidance material on hazards of the medications is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (n) Cases of disabling disease with important impairment of function of the gastrointestinal tract or its adnexae shall be assessed as unfit.
 - (o) The applicant shall be required to be completely free from those hernias that might give rise to incapacitating symptoms.
 - (p) Any sequelae of disease or surgical intervention on any part of the digestive tract or its adnexae, likely to cause incapacity in flight, in particular any obstructions due to structure or compression shall be assessed as unfit.
- (1) An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, which has involved a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical Authority designated for the purpose by Sierra Leone and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.
- (q) Cases of metabolic, nutritional or endocrine disorders likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.
 - (r) Proven cases of diabetes mellitus shown to be satisfactorily controlled without the use of any anti-diabetic drug, may be assessed as fit. The use of anti-diabetic drugs for the control of diabetes mellitus is disqualifying except for those oral drugs administered under conditions permitting appropriate medical supervision and control and which according to accredited medical conclusion, are compatible with the safe exercise of the applicant's licences and rating privileges.

- (s) Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit, except in cases where accredited medical conclusion indicates that the condition is not likely to affect the safe exercise of the applicant's licences and rating privileges.

(1) Possession of the sickle cell trait should not be a reason for disqualification unless there is positive medical evidence to the contrary.

(2) Cases in (q) due to a transient condition should be assessed as only temporarily unfit.

- (t) Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be of pathological significance. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.
- (u) Any sequelae of disease or surgical procedures on the kidneys and the urinary tract likely to cause incapacity, in particular any obstructions due to stricture or compression shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

(1) An applicant who has undergone a major surgical operation on the urinary system which has involved a total or partial excision or a diversion of any of its organs should be assessed as unfit until such time as the medical Authority designated for the purpose by Sierra Leone and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.

- (v) An applicant for the first issue of a licences who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the AME, that the applicant has undergone adequate treatment.

- (w) Applicants who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.

(1) Applicants who have undergone gynaecological operations should be considered individually.

- (x) Pregnancy shall be cause of temporary unfitness.

(1) In the absence of significant abnormalities, accredited medical conclusion may indicate fitness during the middle months of pregnancy.

- (y) Following confinement or termination of pregnancy, the applicant shall not be permitted to exercise the privileges of her licences until she has undergone re-examination and has been assessed as fit.
- (z) Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. Certain qualifying functional after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe exercise of the applicants licences and rating privileges may be assessed as fit.

(aa) There shall be:

(1) no active pathological process, acute or chronic, of the internal ear or of the middle ear;

(2) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note: The details of the hearing requirements are set out in 2.10.2.3.4.

(bb) There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract.

2.10.2.3.3 VISUAL REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The function of the eyes and their adnexa shall be normal. There shall be no active pathological condition, acute or chronic, nor any sequelae of surgery or trauma of the eyes or their adnexa likely to reduce proper visual function to an extent that would interfere with the safe exercise of the applicant's licences and rating privileges.
- (b) Distant visual acuity with or without correction shall be 6/12 or better in each eye separately, and binocular visual acuity shall be 6/9 or better. No limits apply to uncorrected visual acuity. Where this standard of visual acuity can be obtained only with correcting lenses, the applicant may be assessed as fit provided that:

(1) such correcting lenses are worn during the exercise of the privileges of the licences or rating applied for or held; and

(2) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licences.

Note: An applicant accepted as meeting these provisions is deemed to continue to do so unless there is reason to suspect otherwise, in which case an ophthalmic report is required at the discretion of the Authority. Both uncorrected and correct visual acuity are normally measured and recorded at each re-examination. Conditions which indicate a need to obtain an ophthalmic report include: a substantial decrease in the uncorrected visual acuity; any decrease in best corrected visual acuity, and the occurrence of eye disease, eye injury or eye surgery.

- (c) Applicants may use contact lenses to meet the requirement of (b) provided that:

- (1) the lenses are monofocal and non-tinted;
- (2) the lenses are well tolerated; and

(3) a pair of suitable correcting spectacles is kept readily available during the exercise of the licences privileges.

Note: Applicants who use contact lenses may not need to have their uncorrected visual acuity measured at each re-examination provided the history of their contact lens prescription is known.

- (d) Applicants with a large refractive error shall use contact lenses or high-index spectacle lenses.

Note: If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.

- (e) Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 should be required to provide a full ophthalmic report prior to initial Medical Certificate and every five years thereafter.

Note 1: The purpose of the required ophthalmic examination is 1) to ascertain normal visual performance and 2) to identify any significant pathology.

Note 2: Guidance on the assessment of monocular applicants under the provisions of 2.10.1.5 is contained in the Manual of Civil Aviation Medicine (Doc 8984).

- (f) Applicants who have undergone surgery affecting the refractive status of the eye shall be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licences and rating privileges.
- (g) The applicant shall have the ability to read, while wearing the correcting lenses, if any, required by (b), the N5 chart or its equivalent at a distance selected by that applicant in the range of 30 to 50 cm and the ability to read the N14 chart or its equivalent at a distance of 100 cm. If this requirement is met only by the use of near correction, the applicant may be assessed as fit provided that this near correction is added to the spectacle correcting already prescribed in accordance with (b); if no such correction is

prescribed, a pair of spectacles for near use shall be kept readily available during the exercise of the privileges of the licences. When near correction is required, the applicant shall demonstrate that one pair of spectacles is sufficient to meet both distant and near visual requirements.

Note 1: *N5 and N14 refer to the size of typeface used. For further details, see the Manual of Civil Aviation Medicine (Doc 8984).*

Note 2: *Any applicant who needs near correction to meet this requirement will require “look-over”, bifocal or perhaps multifocal lenses in order to read the instruments and a chart or manual held in the hand, and also to make use of distant vision, through the windscreen, without removing the lenses. Single-vision near correction (full lenses of one power only, appropriate for reading) significantly reduces distant visual acuity and is therefore not acceptable.*

Note 3: *Whenever there is a requirement to obtain or renew correcting lenses, an applicant is expected to advise the refractionist of reading distances for the visual flight deck tasks relevant to the types of aircraft in which the applicant is likely to function.*

(1) When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles shall be kept available for immediate use.

- (h) The applicant shall be required to have normal fields of vision.
- (i) The applicant shall be required to have normal binocular function.

Note: *Defective stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may not be disqualifying.*

2.10.2.3.4 HEARING REQUIREMENTS

- (j) The medical examination shall be based on the following requirements.

(1) The applicant shall be able to hear an average conversational voice in a quiet room, using both ears, at a distance of 2 m from the examiner, with the back turned to the examiner.

2.10.2.4 CLASS 3 MEDICAL CERTIFICATE

2.10.2.4.1 CERTIFICATE ISSUE AND RENEWAL

- (a) An applicant for an Air Traffic Controller licences shall undergo an initial medical examination for the issue of a Class 3 Medical Certificate.
- (b) Except where otherwise stated in this subpart, holders of an Air Traffic Controller licences shall have their Class 3 Medical Certificate renewed at intervals not exceeding those specified in 2.10.1.8. (b).
- (c) A Class 3 Medical Certificate will be issued when the applicant complies with the requirements of this Part.

2.10.2.4.2 PHYSICAL AND MENTAL REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The applicant shall not suffer from any disease or disability which could render that applicant likely to become suddenly unable to perform assigned duties safely.
- (b) The applicant shall have no established medical history or clinical diagnosis of:

- (1) psychosis;
- (2) alcoholism;

- (3) drug dependence;
- (4) any personality disorder, particularly if severe enough to have repeatedly resulted in overt acts;
- (5) a mental abnormality, or neurosis of a significant degree;
 - (i) such as might render the applicant unable to safely exercise the privileges of the licences applied for or held, unless accredited medical conclusion indicates that in special circumstances, the applicant's failure to meet the requirement is such that exercise of the privileges of the licences applied for is not likely to jeopardize flight safety.
- (c) The applicant should have no established medical history or clinical diagnosis of any mental abnormality, personality disorder or neurosis which according to accredited medical conclusion, makes it likely that within two years of the examination the applicant will be unable to safely exercise the privileges of the licences or rating applied for or held.

Note: A history of acute toxic psychosis need not be regarded as disqualifying, provided that the applicant has suffered no permanent impairment.

- (d) The applicant shall have no established medical history or clinical diagnosis of any of the following:
 - (1) a progressive or non-progressive disease of the nervous system, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licences and rating privileges;
 - (2) epilepsy;
 - (3) any disturbance of consciousness without satisfactory medical explanation of cause;
 - (e) Cases of head injury, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.

- (f) The applicant shall not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licences and rating privileges. An applicant indicated by accredited medical conclusion to have made a satisfactory recovery from myocardial infarction may be assessed as fit.

Note: Such commonly occurring conditions as respiratory arrhythmia, occasional extrasystoles which disappear on exercise, increase of pulse rate from excitement or exercise, or a slow pulse not associated with auriculoventricular dissociation may be regarded as being within "normal" limits.

- (g) Electrocardiography should form part of the heart examination for the first issue of a licences, at the first re-examination after the age of 40 and thereafter no less frequently than every five years, and in re-examinations in all doubtful cases.

Note 1: The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.

Note 2: Guidance on resting and exercise electrocardiography is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (h) The systolic and diastolic blood pressures shall be within normal limits.

Note 1: The use of drugs for control of high blood pressure is disqualifying except for those drugs, the use of which, according to accredited medical conclusion is compatible with the safe exercise of the applicant's licences and rating privileges.

Note 2: Extensive guidance on the subject is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (i) There shall be no significant functional nor structural abnormality of the circulatory tree. The presence of varicosities does not necessarily entail unfitness.

- (j) There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

(1) Radiography should form a part of the initial chest examination and should be repeated periodically thereafter.

- (k) Cases of pulmonary emphysema should be assessed as unfit only if the condition is causing symptoms.
- (l) Cases of pulmonary emphysema should be assessed as unfit if the condition is causing symptoms.
- (m) Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

Note 1: Guidance material on assessment of respiratory diseases is published in the Manual of Civil Aviation Medicine (Doc 8984).

Note 2: Guidance material on hazards of the medications is published in the Manual of Civil Aviation Medicine (Doc 8984).

- (n) Cases of disabling disease with important impairment of function of the gastrointestinal tract or its adnexae shall be assessed as unfit.
- (o) The applicant shall be required to be completely free from those hernias that might give rise to incapacitating symptoms.
- (p) Any sequelae of disease or surgical intervention on any part of the digestive tract or its adnexae, likely to cause incapacity in flight, in particular any obstructions due to structure or compression shall be assessed as unfit.

- (q) Cases of metabolic, nutritional or endocrine disorders likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.
- (r) Proven cases of diabetes mellitus shown to be satisfactorily controlled without the use of any anti-diabetic drug, may be assessed as fit. The use of anti-diabetic drugs for the control of diabetes mellitus is disqualifying except for those oral drugs administered under conditions permitting appropriate medical supervision and control and which according to accredited medical conclusion, are compatible with the safe exercise of the applicant's licences and rating privileges.
- (s) Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit, except in cases where accredited medical conclusion indicates that the condition is not likely to affect the safe exercise of the applicant's licences and rating privileges.

(1) Cases in (q) due to a transient condition should be assessed as only temporarily unfit.

- (t) Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be of pathological significance. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.
- (u) Any sequelae of disease or surgical procedures on the kidneys and the urinary tract likely to cause incapacity, in particular any obstructions due to stricture or compression, shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

- (v) An applicant for the first issue of a licences who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the AME, that the applicant has undergone adequate treatment.
- (w) Applicants who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe exercise of the applicant's licences and rating privileges shall be assessed as unfit.
- (x) Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. Functional after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe exercise of the applicants licences and rating privileges may be assessed as fit.
- (y) There shall be:

(1) no active pathological process, acute or chronic, of the internal ear or of the middle ear;

(2) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note: The details of the hearing requirements are set out in 2.10.2.4.4.

- (z) There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract. Cases of speech defects and stuttering shall be assessed as unfit.

2.10.2.4.2 VISUAL REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The function of the eyes and their adnexa shall be normal. There shall be no active pathological condition, acute or chronic, nor any sequelae of surgery or trauma of the eyes or their adnexa likely to reduce proper visual function to an extent that would interfere with the safe exercise of the applicant's licences and rating privileges.
- (b) Distant visual acuity with or without correction shall be 6/9 or better in each eye separately, and binocular visual acuity shall be 6/6 or better. No limits apply to uncorrected visual acuity. Where this standard of visual acuity can be obtained only with correcting lenses, the applicant may be assessed as fit provided that:

(1) such correcting lenses are worn during the exercise of the privileges of the licences or rating applied for or held; and

(2) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licences.

Note: An applicant accepted as meeting these provisions is deemed to continue to do so unless there is reason to suspect otherwise, in which case an ophthalmic report is required at the discretion of the Authority. Both uncorrected and correct visual acuity are normally measured and recorded at each re-examination. Conditions which indicate a need to obtain an ophthalmic report include: a substantial decrease in the uncorrected visual acuity; any decrease in best corrected visual acuity, and the occurrence of eye disease, eye injury or eye surgery.

- (c) Applicants may use contact lenses to meet the requirement of (b) provided that:

(1) the lenses are monofocal and non-tinted;

(2) the lenses are well tolerated; and

(3) a pair of suitable correcting spectacles is kept readily available during the exercise of the licences privileges.

Note: Applicants who use contact lenses may not need to have their uncorrected visual acuity measured at each re-examination provided the history of their contact lens prescription is known.

(d) Applicants with a large refractive error shall use contact lenses or high-index spectacle lenses.

Note: If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.

(e) Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 should be required to provide a full ophthalmic report prior to initial Medical Certificate and every five years thereafter.

Note 1: The purpose of the required ophthalmic examination is 1) to ascertain normal visual performance and 2) to identify any significant pathology.

Note 2: Guidance on the assessment of monocular applicants under the provisions of 2.10.1.5 is contained in the Manual of Civil Aviation Medicine (Doc 8984).

(f) Applicants who have undergone surgery affecting the refractive status of the eye shall be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licences and rating privileges.

(g) The applicant shall have the ability to read, while wearing the correcting lenses, if any, required by (b), the N5 chart or its equivalent at a distance selected by that applicant in the range of 30 to 50 cm and the ability to read the N14 chart or its equivalent at a distance of 100 cm. If this requirement is met only by the use of near correction, the applicant may be assessed as fit provided that this near

correction is added to the spectacle correcting already prescribed in accordance with (b); if no such correction is prescribed, a pair of spectacles for near use shall be kept readily available during the exercise of the privileges of the licences. When near correction is required, the applicant shall demonstrate that one pair of spectacles is sufficient to meet both distant and near visual requirements.

Note 1: N5 and N14 refer to the size of typeface used. For further details, see the Manual of Civil Aviation Medicine (Doc 8984).

Note 2: Any applicant who needs near correction to meet this requirement will require "look-over", bifocal or perhaps multifocal lenses in order to read the instruments and a chart or manual held in the hand, and also to make use of distant vision, through the windscreen, without removing the lenses. Single-vision near correction (full lenses of one power only, appropriate for reading) significantly reduces distant visual acuity and is therefore not acceptable.

Note 3: Whenever there is a requirement to obtain or renew correcting lenses, an applicant is expected to advise the refractionist of reading distances for the visual flight deck tasks relevant to the types of aircraft in which the applicant is likely to function.

(1) When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles shall be kept available for immediate use.

(h) The applicant shall be required to have normal fields of vision.

(i) (The applicant shall be required to have normal binocular function.

Note: Defective stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may not be disqualifying.

2.10.2.4.3 HEARING REQUIREMENTS

The medical examination shall be based on the following requirements.

- (a) The applicant, tested on a pure-tone audiometer at first issue of licences, not less than once every five years up to the age of 40 years, and thereafter not less than once every three years, shall not have a hearing loss in either ear separately, of more than 35 dB at any of the frequencies 500, 1 000 or 2 000 Hz, or more than 50 dB at 3 000 Hz. However, an applicant with a hearing loss greater than the above may be declared fit provided that:

(1) the applicant has a hearing performance in each ear separately equivalent to that of a normal person, against a background noise that will simulate the that experienced in a typical air traffic control working environment; and

(2) the applicant has the ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 2 m from the examiner, with the back turned to the examiner.

- (b) Alternatively, other methods providing equivalent results to those specified in (a) shall be used.

2.11 PARACHUTE RIGGER LICENCES, INSTRUCTORS AND DESIGNATED PARACHUTE RIGGER EXAMINERS

2.1.3 APPLICABILITY

- (a) This Subpart prescribes the requirements for issuance of a parachute rigger licences and ratings, and the conditions under which those licences and ratings are necessary.

2.11.1.1 ELIGIBILITY REQUIREMENTS: GENERAL

- (a) To be eligible for a parachute rigger licences, a person shall-
- (b) Be at least 18 years of age.

- (c) Be able to read, speak, write, and understand the Sierra Leone language, and English if required by the Authority.

- (d) Comply with the sections of this subpart that apply to the licences and type rating he or she seeks.

2.11.1.2 LICENCES REQUIRED

- (a) No person may pack, maintain, or alter any personnel-carrying parachute intended for emergency use in connection with civil aircraft of Sierra Leone unless he or she holds an appropriate current licences and type rating issued under this Subpart and complies with this Subpart.

- (b) Except as allowed by paragraph (c) of this subsection, no person may pack, maintain, or alter any main parachute of a dual parachute pack to be used for intentional jumping from a civil aircraft of Sierra Leone unless he or she has an appropriate valid licences issued under this Subpart.

- (c) A person who does not hold a licences may pack the main parachute of a dual parachute pack that is to be used by him or her for intentional jumping.

- (d) Each person who holds a parachute rigger licences shall present it for inspection upon the request of the Authority or an authorised representative of the Director General Office, or any State or local law enforcement officer.

- (e) The following parachute rigger licences are issued under this part:

(1) Senior parachute rigger.

(2) Master parachute rigger.

- (f) Sections 2.11.1.9 through 2.11.1.12 do not apply to parachutes packed, maintained, or altered for the use of the *armed forces*.

2.11.1.3 SENIOR PARACHUTE RIGGER LICENCES—EXPERIENCE, KNOWLEDGE, AND SKILL REQUIREMENTS

- (a) An applicant for a senior parachute rigger licences shall-
- (b) Present evidence satisfactory to the Authority that he or she has packed at least 20 parachutes of each type for which he or she seeks a rating, in accordance with the manufacturer's instructions and under the supervision of a licensed parachute rigger holding a rating for that type or a person holding an appropriate military rating.
- (c) Pass a knowledge test, with respect to a parachute applicable to at least one type parachute appropriate to the type rating sought, on-
 - (1) Construction, packing, and maintenance;
 - (2) The manufacturer's instructions; and
 - (3) The regulations of this Subpart.
- (d) Pass skill test showing the ability to pack and maintain at least one type of parachute appropriate to the type rating sought. Requirements for the skill test are contained in IS 2.11.1.4.

2.11.1.4 MASTER PARACHUTE RIGGER LICENCES—EXPERIENCE, KNOWLEDGE, AND SKILL REQUIREMENTS

- (a) An applicant for a master parachute rigger licences shall meet the following requirements:
 - (1) Present evidence satisfactory to the Authority of at least 3 years of experience as a parachute rigger and having satisfactorily packed at least 100 parachutes of each of two types appropriate to type ratings held, in accordance with the manufacturer's instructions-

- (i) While a licensed and appropriately rated senior parachute rigger; or
 - (ii) While under the supervision of a licensed and appropriately rated parachute rigger or a person holding appropriate military ratings.
 - (iii) An applicant may combine experience specified in paragraphs (a) (1) and (2) of this paragraph to meet the requirements of this subsection.
- (2) If the applicant is not the holder of a senior parachute rigger licences, pass a knowledge test, with respect to parachutes appropriate to the type rating sought, on-
- (i) Their construction, packing, and maintenance;
 - (ii) The manufacturer's instructions; and
 - (iii) The regulations of this Subpart.
- (3) Pass skill test showing the ability to pack and maintain two types of parachutes appropriate to the type ratings sought. Requirements for the skill test are contained in IS 2.11.1.5.

2.11.1.5 TYPERATINGS

- (a) The following type ratings are issued under this subpart:
 - (1) Seat.
 - (2) Back.
 - (3) Chest.
 - (4) Lap.
- (b) The skill test requirements for a type rating are contained in IS 2.11.1.6.

- (c) The holder of a senior parachute rigger licences who qualifies for a master parachute rigger licences is entitled to have placed on the senior parachute rigger licences the ratings that were on the parachute rigger licences.

2.11.1.6 ADDITIONAL TYPE RATINGS: REQUIREMENTS

- (a) A licensed parachute rigger who applies for an additional type rating shall-

(1) Present evidence satisfactory to the Authority of having packed at least 20 parachutes of the type rating sought, in accordance with the manufacturer's instructions and under the supervision of a licensed parachute rigger holding a rating for that type or a person holding an appropriate military rating; and

(2) Pass a skill test, to the satisfaction of the Authority, showing the ability to pack and maintain the type of parachute for which the applicant seeks a rating.

2.11.1.7 PRIVILEGES

- (a) A licensed senior parachute rigger may-

(1) Pack or maintain (except for major repair) any type of parachute for which he or she is rated; and

(2) Supervise other persons in packing any type of parachute for which he or she is rated.

- (b) A licensed master parachute rigger may-

(1) Pack, maintain, or alter any type of parachute for which he or she is rated; and

(2) Supervise other persons in packing, maintaining, or altering any type of parachute for which he or she is rated.

- (c) A licensed parachute rigger need not comply with 2.11.1.9 through 2.11.1.12 (related to facilities, equipment, performance standards, records, recent experience, and seal) in packing, maintaining, or altering (if authorised) the main parachute of a dual parachute pack to be used for intentional jumping.

2.11.1.8 FACILITIES AND EQUIPMENT

- (a) No licensed parachute rigger shall exercise the privileges of his licences unless he or she has at least the following facilities and equipment available-

(1) A smooth top table at least three feet wide by 40 feet long;

(2) Suitable housing that is adequately heated, lighted, and ventilated for drying and airing parachutes;

(3) Enough packing tools and other equipment to pack and maintain the types of parachutes serviced; and

(4) Adequate housing facilities to perform applicable duties and to protect tools and equipment.

2.11.1.9 PERFORMANCE STANDARDS AND RECENCY REQUIREMENTS

- (a) No licensed parachute rigger may-

(1) Pack, maintain, or alter any parachute unless he or she is rated for that type;

(2) Pack a parachute that is not safe for emergency use;

(3) Pack a parachute that has not been thoroughly dried and aired;

(4) Alter a parachute in a manner that is not specifically authorised by the Authority or the manufacturer;

(5) Pack, maintain, or alter a parachute in any manner that deviates from procedures approved by the Authority or the manufacturer of the parachute; or

(6) Exercise the privileges of the licences and type rating unless he or she understands the current manufacturer's instructions for the operation involved and has-

- (i) Performed duties under the licences for at least 90 days within the preceding 12 months; or
- (ii) Shown to the Authority the ability to perform those duties.

2.11.1.10 RECORDS

- (a) Each licensed parachute rigger shall keep a record of the packing, maintenance, and alteration of parachutes performed or supervision of those activities.
- (b) Each licensed parachute rigger who packs a parachute shall enter on the parachute packing record attached to the parachute, the date and place of the packing, a notation of any defects found during any inspection, and shall sign that record with his or her name and licences number.
- (c) Each parachute rigger shall sign the record required by paragraph (b) of this subsection with the name and the number of his or her licences.
- (d) The record required by paragraph (a) of this subsection shall contain, with respect to each parachute worked on, a statement of-
 - (1) Its type and make;
 - (2) Its serial number;

- (3) The name and address of its owner or user;
- (4) The kind and extent of the work performed;
- (5) The date when and place where the work was performed; and
- (6) The results of any drop tests made with it.

- (e) Each person who makes a record under paragraph (a) of this subsection shall keep it for at least 2 years after the date it is made.

2.11.1.11 SEAL

- (a) Each licensed parachute rigger shall have a seal with an identifying mark prescribed by the Authority, and a seal press.
- (b) After packing a parachute, the parachute rigger shall seal the pack with his or her seal in accordance with the manufacturer's recommendation for that type of parachute.

2.11.1.12 DURATION OF PARACHUTE RIGGER LICENCES

- (a) Validity: The validity period of the licences is 5 years. A licences shall become invalid when a parachute rigger has ceased to exercise the privileges of the licences for a period of 6 months. A licences shall remain invalid until the parachute rigger's ability to exercise the privileges of the licences has been re-established.
- (b) Renewal. An parachute rigger licences that has not expired may be renewed for an additional five years if the holder presents to the Authority evidence that he/she has within the past 6 months preceding the expiry date -
 - (1) Be actively engaged in the duties of a parachute rigger, or

- (2) Received refresher training acceptable to the Authority.
 - (c) Reissue. If the parachute rigger licences has expired, the applicant shall have received refresher training acceptable to the Authority.

2.11.1.13 DISPLAY OF LICENCES

(a) Each person who holds a parachute rigger licences shall keep it within the immediate area where he/she normally exercises the privileges of the licences and shall present it for inspection upon the request of the Authority or an authorised representative of the Director General, or any State, or local law enforcement officer.

2.11.2 PARACHUTE RIGGER INSTRUCTOR REQUIREMENTS

2.11.2.1 REQUIREMENTS FOR A PARACHUTE RIGGER INSTRUCTOR LICENCES

- (a) Age. An applicant for parachute rigger instructor licences and rating shall be at least 21 years of age.
- (b) Knowledge.
 - (1) An applicant for a parachute rigger instructor licences shall have met the instructor requirements in 2.2.6 of this part; and
 - (2) Any additional requirements as may be specified by the Authority.
- (c) Experience. The applicant for a parachute rigger instructor licences shall hold at least a current and valid parachute rigger licences and ratings applicable to the instructor licences sought, and have a minimum of three years experience as a parachute rigger.
- (d) Privileges. The privileges of a parachute rigger instructor licences and rating are to give instruction to parachute rigger licences applicants and to endorse those applicants for a knowledge or skill test as applicable.

- (e) Validity. Subject to compliance with the requirements specified in this Part, the validity period of the parachute rigger instructor licences is 2 years.
- (f) Renewal. A parachute rigger instructor licences that has not expired may be renewed for an additional 24 calendar months if the holder presents to the Authority evidence that he/she has within the past 12 months preceding the expiry date -
 - (1) Conducted at least six exercises in an approved course for a parachute rigger licences; or
 - (2) Received refresher training acceptable to the Authority.

- (g) Reissue. If the parachute rigger instructor licences has expired, the applicant shall have received refresher training acceptable to the Authority.

2.11.3 DESIGNATED PARACHUTE RIGGER EXAMINER REQUIREMENT

2.11.3.1 GENERAL REQUIREMENTS

- (a) Age. An applicant for a Designated Parachute Rigger Examiner (DPRE) licences shall be at least 23 years of age.
- (b) General eligibility.
 - (1) Show evidence of a high level of aeronautical knowledge in the subject areas for the DPRE certification.
 - (2) Have held a DPR licences for at least five years prior to the designation.
 - (3) Have been actively exercising the privileges of the DPR for the previous three years.
 - (4) Have a good record as a DPR and a person engaged in the industry and community with a reputation for hones and dependability.

(5) Have satisfactorily completed the DPRE orientation programme with the Authority.

(6) The applicant must have fixed base of operations adequately equipped to all practical Subject Areas to return to service condition.

(7) The applicant shall have at the fixed base of operation adequate equipment to test the Tasks in each Area of Operation listed in the PTS.

(8) The applicant shall have tools, equipment, current publications, and materials required to complete a project assignment as recommended by the parachute manufacture or industry standards.

2.11.3.2 KNOWLEDGE

(a) The applicant shall have passed a pre-designation test on the following:

- (1) Air Law and Regulations for DPR personnel.
- (2) Packing and maintaining a wide variety of parachutes.
- (3) Alterations of parachutes in accordance with manufactures and industry standards.
- (4) Proper use of Seals for identification purposes.
- (5) Proper record keeping requirements.

2.11.3.3 SKILL

- (a) The Authority shall observe the applicant conducting a complete actual Senior Parachute or Master Parachute Rigger certification using the approved PTS in a satisfactory manner.
- (b) The applicant shall complete all required paper work for the certification as required by the Authority.

2.11.3.4 CURRENCY

(a) After designation, a DPRE shall maintain currency by

- (1) Attending initial and recurrent training conducted by the Authority, and
- (2) Maintaining a current and valid parachute rigger licences and applicable ratings.
- (3) The DPRE shall conduct at least 6 Skill test during any 12 calendar month period in order for the designation to remain current.
- (4) The DPRE shall be observed by the Authority in the conduct of a Skill test at least once each 12 calendar months.

2.11.3.5 PRIVILEGES

- (a) The DPRE may conduct Skill test for the Senior Parachute Rigger and Master Parachute Rigger licences in accordance with approved PTS standard.
- (b) The DPRE may conduct or monitor any portion of a computerised knowledge test.

2.11.3.6 VALIDITY

- (a) The DPRE examiner designation shall be valid for one year.

2.11.3.7 RENEWAL

- (b) The DPRE examiner designation may be renewed by the Authority if:
 - (1) The need for the designation remains valid.
 - (2) The performance of the examiner has been satisfactory.
 - (3) The DPRE examiner has attended the DPRE examiner seminar conducted by the Authority in the previous 12-month period.

IS 2.2.1 ISSUE, RENEWAL AND RE-ISSUE OF LICENCES, RATINGS, AUTHORIZATIONS AND CERTIFICATES

- (a) Issue, renewal and re-issue of licences, ratings, authorizations and certificates will take place when the applicant meets the requirements of Part 2 for issue, renewal and re-issue for these licences, ratings authorizations and certificates.
 - (c) Issue, renewal and re-issue of licences, ratings, authorizations and certificates will be performed by the Authority
 - (d) Notwithstanding (b), renewal of ratings and category II/III pilot authorizations may be performed by the Examiner, when delegated by the Authority
 - (e) Notwithstanding (b), renewal of medical certificates may be performed by the AME, when delegated by the Authority
- Application for the issue, renewal and re-issue of licences, ratings, authorizations or certificates by the Authority shall be done by submitting to the Authority a properly filled out form, which form can be obtained from the Authority. This form must be submitted to the Authority at least 14 days before the expiry date.

IS 2.2.4.3 APPENDIX A: PROCEDURES FOR CONVERSION OF APPL

- (a) The holder of a private pilot licences issued by another Contracting State may directly apply for a conversion of his or her licences, without prior holding a validation as is required for PPL/IR or professional licences under 2.2.4.3 (b).
- (b) The applicant shall, before application for a conversion, complete the requirements of 2.2.4.3 (a).

- (c) Application for the issue of a conversion of a licences issued by another Contracting State must be done by submitting to the Authority a properly filled out form, which form can be obtained from the Authority
- (d) The application form for the issue of a conversion of a licences issued by another Contracting State must be submitted to the Authority at least 14 days in advance of the date the conversion is desired.
- (e) The valid licences from the other Contracting State and the record (e.g.) logbook must be presented to the Authority
- (f) The applicant shall hold a medical certificate relevant to the licences applied for and this medical certificate will be issued by the Authority of Sierra Leone, when the applicant complies with the requirements of this Part.
- (g) The Authority that issues a licences based on a licences issued by another Contracting State, remains responsible for the converted licences.

IS 2.2.4.3 APPENDIX B: PROCEDURES FOR CONVERSION OF A PPL/IR, CPL, CPL/IR, ATPL AND FLIGHT ENGINEER LICENCES

- (a) The applicant shall, before application for a conversion, complete the requirements of 2.2.4.3. (b).
- (b) Application for the conversion of a licences issued by another Contracting State shall be made by submitting a properly filled out form to the Authority which form can be obtained from the Authority
- (c) The application form for the issue of a conversion of a licences issued by another Contracting State must be submitted to the Authority at least 14 days in advance of the date the conversion is desired.

- (d) The valid licences from the other Contracting State and the record (e.g. logbook) must be presented to the Authority. The applicant shall hold a medical certificate relevant to the licences applied for and this medical certificate will be issued by the Authority of Sierra Leone, when the applicant complies with the requirements of this Part.
- (e) The Authority that issues a licences based on a licences issued by another Contracting State, remains responsible for the converted licences.

IS 2.2.4.3 APPENDIX C: PROCEDURES FOR VALIDATION AND CONVERSION OF FLIGHT CREW LICENCES BY RELIANCE UPON THE LICENSING SYSTEM OF ANOTHER CONTRACTING STATE.

- (a) The Authority that issues a licences based on a licences from another Contracting State remains responsible for the validation certificate and the converted licences.
- (b) The Authority should, before making the agreement mentioned in 2.2.4.3 (a)(3) be convinced, that the other Contracting State issues licences in conformity with at least this Part 2.
- (c) An inspector or experienced pilot from Sierra Leone or from another Contracting State delegated by the Authority of Sierra Leone must visit the other Contracting State to be convinced that the licensing system in the other Contracting State is in conformity with at least this Part 2. A report describing the bases for the decision shall be made to the Authority of Sierra Leone
- (d) An Air Law test must be arranged if the Air Law system of Sierra Leone is different from the Air Law system from the other Contracting State.
- (e) Renewal and re-issue of the validation certificate or the converted licences and ratings:

(1) when examiners are available in Sierra Leone to perform proficiency checks for the renewal of rating(s) or skill tests for the re-issue of the licences or rating(s), these tests/checks will be performed by the authorized examiners of Sierra Leone

(2) when examiners are not available in Sierra Leone to perform proficiency checks for the renewal of the rating(s) or skill test for the re-issue of the licences or rating(s), the availability of examiners for these tests/checks from the other Contracting State can be arranged in the agreement mentioned in 2.2.4.3 (a)(3).

- (f) Application for the validation certificate and the conversion of a licences from another Contracting State shall be done by submitting to the Authority a properly filled out form, which form can be obtained from the Authority
- (g) The valid licences from the other Contracting State and the record (e.g. logbook) must be presented to the Authority
- (h) The applicant shall hold a medical certificate relevant to the licences applied for and this medical certificate will be issued by the Authority of Sierra Leone when the applicant complies with the requirements of this Part.

IS 2.2.5 MILITARY PILOTS

- (a) Requirements for a military pilot to meet the requirements of 2.2.5.
- (b) *Military pilots on active flying status within the past 12 months.* The holder of a military pilot licences (or certificate) who has been on active flying status within the 12 months before applying shall:

(1) Pass a knowledge test on the appropriate parts of these regulations that apply to pilot privileges and limitations, air traffic and general operating rules, and accident reporting rules;

(2) Present documentation showing compliance with the requirements of paragraph (c) of this subsection for at least one aircraft category rating; and

(3) Present documentation showing that the applicant is or was, at any time during the 12 calendar months before the month of application the holder of a military pilot licences (or certificate) on active flying status in an armed force of Sierra Leone.

(c) *Aircraft category, class and type ratings.* The Authority may issue to the holder of a military pilot licences (or certificate) an aircraft category, class or type rating to a commercial pilot licences if the pilot present documentary evidence that shows satisfactory accomplishment of:

(1) A military pilot check and instrument proficiency check of Sierra Leone in that aircraft category, class or type, if applicable, as PIC during the 12 calendar months before the month of application; and

(2) At least 10 hours of PIC time in that aircraft category, class or type, if applicable, during the 12 calendar months before the month of application.

(d) *Instrument rating.* The holder of a military pilot licences (or certificate) may apply for an aeroplane or helicopter instrument rating to be added to his or her commercial pilot licences if the pilot has, within the 12 calendar months preceding the month of application:

(1) Passed an instrument proficiency check by an armed force of Sierra Leone in the aircraft category for the instrument rating sought; and

(2) Received authorization from an armed force of Sierra Leone to conduct IFR flights on airways in that aircraft category and class for the instrument rating sought.

(e) *Aircraft type rating.* The Authority will issue an aircraft type rating only for aircraft types that the Authority has certified for civil operations.

(f) *Aircraft type rating placed on an airline transport pilot licences.* The Authority may issue to the holder of a military pilot licences (or certificate) who holds an airline transport pilot licences an aircraft type rating provided that the pilot:

(1) Holds a category and type rating for that type of aircraft at the airline transport pilot licences level; and

(2) Passed an official military pilot of Sierra Leone check and instrument proficiency check in that type of aircraft as PIC during the 12 calendar months before the month of application.

(g) *Evidentiary documents.* The Authority may accept the following documents as satisfactory evidence of military pilot status.

(1) An official identification card issued to the pilot by an armed force to demonstrate membership in the armed forces.

(2) An original or a copy of a certificate of discharge or release from an armed force of Sierra Leone;

(3) At least one of the following:

(i) An order of an armed force of Sierra Leone to flight status as a military pilot

(ii) An armed force form or logbook showing military pilot status; or

(iii) an order showing that the applicant graduated from a military pilot school of Sierra Leone and received a rating as a military pilot.

(4) A certified armed force logbook or an appropriate official armed force form or summary to demonstrate flight time in military aircraft as a member of an armed force of Sierra Leone

(5) An official armed force of Sierra Leone record of a military designation as PIC.

(6) An official record of satisfactory accomplishment of an instrument proficiency check during the 12 calendar months preceding the month of application.

IS 2.2.6 APPENDIX A: PREREQUISITES FOR A KNOWLEDGE TEST

(a) The applicant shall, before passing the knowledge test for a licences or rating:

(7) have satisfactorily accomplished the required training;

(8) have an endorsement in his or her logbook or training record, that has been signed by an authorized instructor, who certifies that the applicant is prepared for the knowledge test.

IS 2.2.6 APPENDIX B: PREREQUISITES FOR A SKILL TEST

(a) An applicant shall, before passing the skill test for a licences or rating:

(1) have passed the required knowledge test within the 24-calendar-month period preceding the month the applicant completes the skill test;

(2) have satisfactorily accomplished the required training and obtained the experience prescribed by Part 2 for the licences or rating sought;

(3) meet the prescribed age requirement of Part 2 for the issuance of the licences or rating sought; and

(4) have an endorsement in his or her logbook or training record that has been signed by an authorized instructor, who certifies that the applicant is prepared for the required skill test.

(b) An applicant for an airline transport pilot licences may take the skill test for that licences with a knowledge test report that has been completed within a period of 7 years before the application, provided the applicant is employed as a flight crew member by a certificate holder under Part 9 at the time of the skill test.

IS 2.2.7 LANGUAGE PROFICIENCY

(a) General

(1) To meet the language proficiency requirements contained in 2.2.7, an applicant for a licences or a licences holder shall demonstrate, in a manner acceptable to the Authority, compliance with the holistic descriptors in paragraph (b) below and with the Operational Level (Level 4) of the Language Proficiency Rating Scale as mentioned in paragraph c) below.

(b) Holistic descriptors: Proficient speakers shall:

(1) communicate effectively in voice-only (telephone/radiotelephone) and in face-to-face situations;

(2) communicate on common, concrete and work-related topics with accuracy and clarity;

(3) use appropriate communicative strategies to exchange messages and to recognize and resolve misunderstandings (e.g. to check, confirm, or clarify information) in a general or work-related context;

(4) handle successfully and with relative ease the linguistic challenges presented by a complication or unexpected turn of events that occurs within the context of a routine work situation or communicative task with which they are otherwise familiar; and

(5) use a dialect or accent which is intelligible to the aeronautical community.

(C)(C) RATING SCALE:

(1) (1) Pronunciation, stress, rhythm and intonation are influenced by the first language or regional variation but only sometimes interfere with understanding.

(2) (2) Structure: Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.

(3) (3) Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.

- (d) Fluency: Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication can make limited use of discourse markers or connectors. Fillers are not distracting.
- (e) Comprehension is mostly accurate on common, concrete, and work related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.
- (f) Interactions: Responses are usually immediate, appropriate and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events deals adequately with apparent misunderstandings by checking, confirming or clarifying.

IS 2.2.8 RECORDING OF FLIGHT TIME

The details in the records of flights flown as pilot shall contain the following items:

- (a) For the purpose of meeting the requirements of 2.2.6.1 and 2.3.1.6, each person shall enter the following information for each flight or lesson logged:

- (1) Personal details:
 - (i) Name and address of the holder
- (2) For each flight:

- (i) Name of PIC
- (ii) Date of flight
- (iii) Place and time of departure and arrival
- (iv) Type of aircraft and registration

(3) For each synthetic flight trainer session:

- (i) Type and qualification number of flight trainer
- (ii) Synthetic flight trainer instruction
- (iii) Date
- (iv) Total time of session

(4) Pilot function:

- (i) Solo
- (ii) PIC
- (iii) Co-pilot
- (iv) Dual
- (v) Flight instructor

(b) Logging of flight time

(1) Logging of solo flight time:

- (i) A student pilot may log as solo flight time only that flight time when the pilot is the sole occupant of the aircraft.

(2) Logging of PIC flight time:

- (i) The applicant or the holder of a pilot licences may log as PIC time all that flight time during which that person is:
 - (A) The sole manipulator of the controls of an aircraft for which the pilot is rated; and
 - (B) Acting as PIC of an aircraft on which more than one pilot is required under the type certification of the aircraft or the regulations under which the flight is conducted.
 - (ii) An authorized instructor may log as PIC time all of the flight time while acting as an authorized instructor.
 - (iii) A student pilot may log as PIC time all solo flight time and flight time as student pilot-in-command provided that such time is countersigned by the instructor.
- (3) Logging of co-pilot time:
 - (i) A person may log co-pilot time only when occupying a pilot seat as co-pilot in an aircraft on which more than one pilot is required under the type certification of the aircraft or the regulations under which the flight is conducted.
- (4) Logging of instrument flight time:
 - (i) A person may log instrument flight time only for that flight when the person operates the aircraft solely by reference to instruments under actual or simulated instrument flight conditions.
- (5) Logging instruction time:
 - (i) A person may log instruction time when that person receives training from an authorized instructor in an aircraft or synthetic flight trainer.

- (ii) The instruction time shall be logged in a record (e.g. logbook) and shall be endorsed by the authorized instructor.

IS 2.2.9 FORMAT OF THE LICENCES

The following details shall appear on the licences:

- (I) Name of State (in bold type);
- (II) Title of licences (in very bold type);
- (III) Serial number of the licences, in Arabic numerals, given by the Authority issuing the licences;
- (IV) Name of holder in full (in Roman alphabet also if script of national language is other than Roman and date of birth;
- (V) Address of holder;
- (VI) Nationality of holder;
- (VII) Signature of holder;
- (VIII) Authority and, where appropriate, all conditions under which the licences is issued;
- (IX) Certification concerning validity and authorization;
- (X) Signature of officer issuing the licences and the date of such issue;
- (XI) Seal or stamp of Authority issuing licences;
- (XII) Ratings, e.g. category, class, type of aircraft, airframe, aerodrome control, etc.;
- (XIII) Remarks, i.e. special endorsements relating to limitations and endorsements for privileges;
- (XIV) Any other details desired by the Authority in issuing the licences.

IS 2.3.2.4 APPENDIX A: CLASS/TYPE RATING (SPA AND MPA) - KNOWLEDGE

(a) The knowledge instruction and test for the type rating for multi-pilot - aeroplane shall include the following subjects:

(1) Aeroplane structure and equipment, normal operation of systems and malfunctions

- (i) Dimensions
- (ii) Engine including auxiliary power unit
- (iii) Fuel system
- (iv) Pressurisation and air-conditioning
- (v) Ice protection, windshield wipers and rain repellent
- (vi) Hydraulic systems
- (vii) Landing gear
- (viii) Flight controls, lift devices
- (ix) Electrical power supply
- (x) Flight instruments, communication, radar and navigation equipment
- (xi) Cockpit, cabin and cargo compartment
- (xii) Emergency equipment

(2) Limitations:

- (i) General limitations
- (ii) Engine limitations
- (iii) System limitations
- (iv) Minimum equipment list

(3) Performance, flight planning and monitoring

(4) Load, balance and servicing

(i) Load and balance

(ii) Servicing on the ground

(5) Emergency procedures

(6) Special requirements for extension of a type rating for instrument approaches down to a decision height of less than 200 ft (60m)

(i) Airborne and ground equipment: technical requirements, operational requirements, operational reliability, fail operational, fail-passive, equipment reliability, operating procedures, preparatory measures, operational downgrading, communications

(ii) Procedures and limitations: operational procedures, crew co-ordination

(7) Special requirements for “glass cockpit” aeroplane with electronic flight instrument systems (e.g. EFIS, EICAS)

(8) Flight Management systems (FMS)

IS 2.3.2.4 APPENDIX B: FLIGHT INSTRUCTION, SKILL TEST AND PROFICIENCY CHECK - CRM

(a) The flight instruction, skill test and proficiency for CRM for the multi-pilot type rating – aeroplane and helicopter shall include the following subjects:

(9) The training programme:

(i) An initial indoctrination/awareness segment;

(ii) A method to provide recurrent practice and feedback; and

(iii) A method of providing continuing reinforcement

- (10) Topics to be contained in an initial CRM training course:
- (i) Communications processes and decision behaviour;
 - (ii) Internal and external influences on interpersonal communications;
 - (iii) Barriers to communication;
 - (iv) Listening skills;
 - (v) Decision making skills
 - (vi) Effective briefings;
 - (vii) Developing open communications;
 - (viii) Inquiry, advocacy and assertion training;
 - (ix) Crew self-critique;
 - (x) Conflict resolution;
 - (xi) Team building and maintenance;
 - (xii) Leadership and followership training;
 - (xiii) Interpersonal relationships;
 - (xiv) Workload management;
 - (xv) Situational awareness
 - (xvi) How to prepare, plan and monitor task completions;
 - (xvii) Workload distribution;
 - (xviii) Distraction avoidance;
 - (xix) Individual factors; and
 - (xx) Stress reduction.

IS 2.3.3.1 STUDENT PILOTS – MANOEUVRES AND PROCEDURES FOR PRE-SOLO FLIGHT TRAINING

- (a) A student pilot who is receiving training for solo flight shall receive and log flight training for the following manoeuvres and procedures, as applicable for each category and class rating:
- (1) Proper flight preparation procedures, including pre-flight planning and preparation, powerplant operation and aircraft systems

- (2) Taxiing, including run-ups
 - (3) Take-offs and landings, including normal and crosswind
 - (4) Straight and level flight and turns in both directions
 - (5) Climbs and climbing turns
 - (6) Airport traffic patterns including entry and departure procedures
 - (7) Collision avoidance, windshear avoidance and wake turbulence avoidance
 - (8) Descents, with and without turns, using high and low drag configurations
 - (9) Flight at various airspeeds from cruise to slow flight
 - (10) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall and recovery from a full stall
 - (11) Emergency procedures and equipment malfunctions
 - (12) Ground reference manoeuvres
 - (13) Approaches to a landing area with simulated engine malfunctions
 - (14) Slips to a landing
 - (15) Go-arounds
- (c) Additional training for a helicopter:
- (1) Approaches to the landing area
 - (2) Hovering and hovering turns
 - (3) Simulated emergency procedures, including autorotational descents with a power recovery and power recovery to hover
 - (4) Rapid decelerations

(5) Simulated one-engine-inoperative approaches and landings for multi-engine helicopters

(d) Manoeuvres and procedures for cross-country flight training in an aeroplane or rotorcraft:

(1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass

(2) Use of aircraft performance charts pertaining to cross-country flight

(3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight

(4) Recognition, avoidance and operational restrictions of hazardous terrain features in the geographical area where the student pilot will conduct cross-country flight

(5) Use of radios for VFR navigation and two-way communications

(6) Climbs at best angle and best rate

(7) Control and manoeuvring solely by reference to flight instruments, including straight and level flight, turns, descents, climbs, use of radio aids and ATC directives.

IS 2.3.3.2 APPENDIX A: PRIVATE PILOT LICENCES (A) – KNOWLEDGE

(b) The knowledge instruction and test for the private pilot licences – aeroplane shall include at least the following subjects:

(1) Air law

(i) Relevant parts of ICAO Convention and Annexes 2, 7, 8, 11 and 14

(ii) ICAO Document 4444: General provisions, Area

control service, Approach control service, Aerodrome control service, Flight information and alerting service;

(iii) National law

(2) Aircraft General Knowledge

(i) Airframe: Airframe structure and loads

(ii) Powerplant: engines general, engine cooling, engine lubrication, ignition systems, carburation, aero engine fuel, fuel systems, propellers, engine handling

(iii) Systems: electrical system, vacuum system

(iv) Instruments: Pitot/static system, Airspeed indicator, Altimeter, Vertical speed indicator, Gyroscopes, Turn indicator, Altitude indicator, Heading indicator, Magnetic compass, Engine instruments, Other instruments

(v) Airworthiness

(3) Flight Performance and Planning

(i) Mass and balance

(ii) Performance: Take-off, Landing, In flight

(4) Human performance:

(i) Basic physiology: Concepts, Effects of partial pressure, Vision, Hearing, Motion sickness, Flying and health, Toxic hazards

(ii) Basic psychology: The information process, the central decision channel, stress, judgement and decision making

- (5) Meteorology
 - (i) The atmosphere, Pressure, density and temperature, Humidity and precipitation, Pressure and wind, Cloud information, Fog, mist and haze, Airmasses, Frontology, Ice accretion, Thunderstorms, Flight over mountainous areas, Climatology, Altimetry, The meteorological organisation, Weather analysis and forecasting, Weather information for flight planning, Meteorological broadcasts for aviation
- (6) Navigation
 - (i) Form of the earth, mapping, conformal orthomorphic projection (ICAO 1.500.000 chart), Direction, Aeroplane magnetism, Distances, Charts in practical navigation, Chart reference material/map reading, Principles of navigation, The navigation computer, Time, Flight planning, Practical navigation
 - (ii) Radio navigation: Ground direction finding (D/F), automatic direction finding (ADF), including associated beacons (non-directional beacons (NDBs) and use of the radio magnetic indicator (RMI), VHF omnidirectional range/distance measuring equipment (VOR/DME), GPS, Ground radar, Secondary surveillance radar
- (7) Operational Procedures
 - (i) Relevant parts of ICAO Annex 6, Part II, Annex 12, 13 and 16 (relevant parts), Contravention of aviation regulations
- (8) Principles of Flight
 - (i) The atmosphere, Airflow around a body, sub-sonic, Airflow about a two dimensional aerofoil, Three

dimensional flow about an aerofoil, Distribution of the four forces, Flying controls, Trimming controls, Flaps and slats, The stall, Avoidance of spins, Stability, Load factor and manoeuvres, Stress loads on the ground

- (9) Communications
 - (i) Radio telephony and communications, Departure procedures, Enroute procedures, Arrival and traffic pattern procedures, Communications failure, Distress and urgency procedures

IS 2.3.3.2 APPENDIX B: PRIVATE PILOT LICENCES (A) – FLIGHT INSTRUCTION AND SKILL TEST

- (a) The flight instruction and skill test for the single-engine and multi-engine private pilot licences – aeroplane shall include at least the following areas of operation:

Note 1: When (SE) is indicated the item or paragraph is only for single-engine, when (ME) is indicated the item or paragraph is only for multi-engine. When nothing is indicated the item or paragraph is for single-engine and multi-engine.

Note 2: When (S) is indicated, the item is only for seaplanes, when (L) is indicated, the item is only for landplanes. When nothing is indicated the item is for land and seaplanes.

(1) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-

- (i) Licences and documents
- (ii) Airworthiness requirements
- (iii) Weather information
- (iv) Cross-country flight planning

- (v) National airspace system
- (vi) Performance and limitations
- (vii) Operation of system
- (viii) Principles of flight
- (ix) Water and Seaplane Characteristics (S)
- (x) Seaplane bases, maritime rules and aids to marine navigation (S)
- (xi) Aeromedical factors

(2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Pre-flight inspection
- (ii) Cockpit management
- (iii) Engine Starting
- (iv) Taxiing (L)
- (v) Taxiing and Sailing (S)
- (vi) Before take-off check

(3) Aerodrome and seaplane operations; including the applicant's knowledge and performance of the following tasks-

- (i) Radio communications and ATC light signals
- (ii) Traffic patterns
- (iii) Aerodrome/Seaplane Base, runway and taxiway signs, markings and lighting

(4) Take-offs, landings and go-arounds; including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind take-off and climb
- (ii) Normal and crosswind approach and landing
- (iii) Soft-field take-off and climb (SE) (L)

- (iv) Soft-field approach and landing (SE) (L)
- (v) Short-field (Confined area (S)) take-off and maximum performance climb
- (vi) Short-field approach (Confined area (S)) and landing
- (vii) Glassy Water take-off and climb (S)
- (viii) Glassy water approach and landing (S)
- (ix) Rough water take-off and climb (S)
- (x) Rough water approach and landing (S)
- (xi) Forward slip to a landing (SE)
- (xii) Go-around /rejected landing

(5) Performance manoeuvre; including the applicant's knowledge and performance of the following tasks-

- (i) Steep turns

(6) Ground reference manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Rectangular course
- (ii) S-turns
- (iii) Turns around a point

(7) Navigation; including the applicant's knowledge and performance of the following tasks-

- (i) Pilotage and dead reckoning
- (ii) Navigation systems and radar services
- (iii) Diversion
- (iv) Lost procedures

(8) Slow flight and stalls; including the applicant's knowledge and performance of the following tasks-

- (i) Manoeuvring during slow flight
- (ii) Power-off stalls
- (iii) Power-on stalls
- (iv) Spin awareness

(9) Basic instrument manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Straight-and-level flight
- (ii) Constant airspeed climbs
- (iii) Constant airspeed descents
- (iv) Turns to headings
- (v) Recovery from unusual flight
- (vi) Radio Communications, navigation systems/facilities and radar services; including the applicant's knowledge and performance of the following tasks-

(10) Emergency operations; including the applicant's knowledge and performance of the following tasks-

- (i) Emergency approach and landing
- (ii) Emergency descent (ME)
- (iii) Engine failure during take-off before VMC (simulated) (ME)
- (iv) Engine failure after lift-off (simulated) (ME)
- (v) Approach and landing with an inoperative engine (simulated) (ME)
- (vi) Systems and equipment malfunctions
- (vii) Emergency equipment and survival gear

(11) Multi-engine operations (ME); including the applicant's knowledge and performance of the following tasks-

- (i) Manoeuvring with one engine inoperative
- (ii) VMC demonstration
- (iii) Engine failure during flight (by reference to instruments)
- (iv) Instrument approach-one engine inoperative (by reference to instruments)

(12) Night operation; including the applicant's knowledge and performance of the following tasks-

- (i) Night preparation

(13) Post-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) After landing, parking and securing
- (ii) Anchoring (S)
- (iii) Docking and mooring (S)
- (iv) Ramping/Beaching (S)

IS 2.3.3.3 APPENDIX A: COMMERCIAL PILOT LICENCES (A) – KNOWLEDGE

- (a) The knowledge instruction and test for the commercial pilot licences – aeroplane shall include at least the following subjects:

(1) Air law

- (i) International Agreements and Organisations: The Convention of Chicago; Other International agreements: IATA agreement; Tokyo and Warsaw Convention; PIC authority and responsibility regarding safety and security; Operators and pilots liabilities towards persons and goods on the ground, in case of damage and injury caused by the operation of the aircraft, Commercial practices and associated rules, dry and wet lease;
- (ii) Relevant parts of ICAO Annexes: 1, 2, 7, 8, 9, 11 (and doc 4444), 12, 13, 14, 15, 17;
- (iii) Procedures for air navigation – aircraft operations Doc 8168;
- (iv) National law

(2) Aircraft general knowledge

- (i) Airframe and systems, electrics, powerplant, emergency equipment
 - (A) Airframe and systems: Fuselage, Cockpit and cabin windows, Wings, Stabilising surfaces, Landing Gear, Flight Controls, Hydraulics, Air driven systems (piston engines only), Air driven systems (turbo-propeller and jet aircraft), Non-pneumatic operated de-ice and anti-ice systems, Fuel system;
 - (B) Electrics: Direct Current (DC), Alternating Current (AC), Semiconductors, Basic knowledge of computers; Basic radio propagation theory
 - (C) Powerplant: Piston Engine, Turbine Engine, Engine construction, Engine systems, Auxiliary Power Unit (APU)
 - (D) Emergency equipment: Doors and emergency exits, Smoke detection, Fire detection, Firefighting equipment, Aircraft oxygen equipment, Emergency equipment
- (ii) Instrumentation
 - (A) Flight instruments: Air data instruments, Gyroscopic Instruments, Magnetic Compass, Radio Altimeter, Electronic Flight Instrument System (EFIS),
 - (B) Automatic flight control system: Flight director, Autopilot, Yaw damper/Stability augmentation system,
 - (C) Warning and recording equipment: Warnings general; Stall warning,
 - (D) Powerplant and system monitoring instruments: Pressure gauge, Temperature gauge, RPM indicator, Consumption gauge, Fuel gauge, Torque meter, Flight hour meter, Vibration motoring, Remote (signal) transmission system, Electronic Displays

(3) Flight performance and planning

- (i) Mass and balance: Centre of gravity, Mass and balance limits
- (ii) Loading: Terminology, Aircraft mass checks, Procedures for determining aeroplane mass and balance documentation; Effects of overloading;
- (iii) Centre of gravity: Basis of cg calculations (load and balance documentation), Calculation of cg; Securing of loading; Area load, running load, supporting
- (iv) Performance of single-engine aeroplanes – Performance class B: Definitions of terms and speeds; Take-off and landing performance, Climb and cruise performance
- (v) Performance of multi-engine aeroplanes: Definitions of terms and speeds; Importance of performance calculations; Elements of performance, Use of performance graphs and tabulated data
- (vi) Flight planning and flight monitoring:
 - (A) Flight plan for cross country flights: Navigation plan, Fuel plan, Flight monitoring and in-flight replanning, Radio communication and navigation aids;
 - (B) ICAO ATC flight plan: Types of flight plan, Completing the flight plan, Filling the flight plan, Closing the flight plan, Adherence to flight plan
 - (C) Practical flight planning: Chart preparation; Navigation plans; Simple fuel plans, Radio planning practice
 - (D) Practical completion of a flight plan (flight plan, flight log, nav log, ATC plan, etc.): Extraction of data

(4) Human performance

- (i) Human factors basic concepts: Human factors in aviation, Accident statistics, Flight safety concepts
- (ii) Basic aviation physiology: Basics of flight physiology, Man and environment: the sensory system; Health and Hygiene;
- (iii) Basic aviation psychology: Human information processing; Human error and reliability; Decision making; Avoiding and managing errors: cockpit management; Personality; Human overload and underload, Advanced cockpit automation

(5) Meteorology

- (i) The atmosphere: Composition, extent, vertical division; Temperature; Atmospheric pressure; Atmospheric density; Altimetry;
- (ii) Wind: Definition and measurement; General circulation; Turbulence; Variation of wind with height; Local winds; Standing waves;
- (iii) Thermodynamics: Humidity;
- (iv) Clouds and Fog: Cloud formation and description; Fog, mist, haze
- (v) Precipitation
- (vi) Airmasses and fronts: Types of airmasses; Fronts;
- (vii) Pressure systems: Location of the principal pressure areas, Anticyclone, Non frontal depressions;
- (viii) Climatology: Typical weather situations in mid-latitudes; Local seasonal weather and wind
- (ix) Flight hazards: Icing, Turbulence; Windshear; Thunderstorms; Hazards in mountainous areas; Visibility reducing phenomena;

- (x) Meteorological information: Observation, Weather charts, Information for flight planning

(6) Navigation:

- (i) General Navigation: Basics of navigation: The solar system; The earth, Time and time conversions; Directions, Distance
- (ii) Magnetism and compasses: General Principles, Aircraft magnetism, Knowledge of the principles, standby and landing or main compasses and remote reading compasses
- (iii) Charts: General properties of miscellaneous types of projections; The representation of meridians, parallels, great circles and rhumb lines; The use of current aeronautical charts
- (iv) Dead reckoning navigation (DR): Basics of dead reckoning; Use of the navigational computer; The triangle of velocities; Determination of DR position; Measurement of DR elements; Resolution of current DR problems; Measurements of maximum range, radius of action and point-of-safe-return and point-of-equal-time
- (v) In-flight navigation: Use of visual observations and application to in-flight navigation; Navigation in climb and descent; Navigation in cruising flight, use of fixes to revise navigation data; Flight log (including navigation records);
- (vi) Radio Navigation: Radio aids: Ground D/F (including classification of bearings); ADF (including associated beacons and use of the radio magnetic indicator); VOR and Doppler-VOR (including the use of the radio magnetic indicator); DME (distance measuring equipment); Basic radar principles: SSR (secondary surveillance radar and transponder); Self-contained and external-referenced navigation systems: Satellite assisted navigation: GPS/GLONASS/DGPS

(7) Operational procedures

- (i) ICAO Annex 6 Parts I, II and III (as applicable)
- (ii) Special operational procedures and hazards: Minimum equipment list; Ground icing; Bird strike risk and avoidance; Noise abatement; Fire/smoke; Decompression of pressurised cabin; Windshear, microburst; Wake turbulence; Security; Emergency and precautionary landings; Fuel jettisoning; Transport of dangerous goods; Contaminated runways;

(8) Principles of flight:

- (i) Basics, laws and definitions; The two-dimensional airflow about an aerofoil; The coefficients; The three-dimensional airflow about an aeroplane; The total drag; The ground effect; The relation between the lift coefficient and the speed for constant lift; The stall; Climax augmentation; Means to decrease the CL-CD ratio, increasing drag; The boundary layer;
- (ii) Stability: Condition of equilibrium in stable horizontal flight; Methods of achieving balance; Longitudinal stability; Static directional stability; Static lateral stability; Dynamic lateral stability;
- (iii) Control: General; Pitch control; Yaw control; Roll control; Interaction in different planes (yaw/roll); Means to reduce control forces; Mass balance; Trimming;
- (iv) Limitations: Operating limitations; Manoeuvring envelope; Gust envelope;
- (v) Propellers: Conversion of engine torque to thrust; Engine failure or engine stop; Design feature for power absorption; Moments and couples due to propeller operation;

- (vi) Flight mechanics: Forces acting on an aeroplane; Asymmetric thrust; Emergency descent; Windshear;

(9) Radiotelephony:

- (i) VFR Communications: Definitions; General operating procedures; Relevant weather information terms (VFR); Action required to be taken in case of communication failure; distress and urgency procedures; General principles of VHF propagation and allocation of frequencies;
- (ii) Morse code.

IS 2.3.3.3 APPENDIX B: COMMERCIAL PILOT LICENCES (A) - FLIGHT INSTRUCTION AND SKILL TEST

- (a) The flight instruction and skill test for the single-engine and multi-engine commercial pilot licences - aeroplane shall include at least the following areas of operation:

Note 1: When (SE) is indicated the item or paragraph is only for single-engine, when (ME) is indicated the item or paragraph is only for multi-engine. When nothing is indicated the item or paragraph is for single-engine and multi-engine.

Note 2: When (S) is indicated, the item is only for seaplanes, when (L) is indicated, the item is only for landplanes. When nothing is indicated the item is for land and seaplanes.

(1) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-

- (i) Licences and documents
- (ii) Airworthiness requirements
- (iii) Weather information
- (iv) Cross-country flight planning
- (v) National airspace system

- (vi) Performance and limitations
- (vii) Operation of system
- (viii) Principles of flight (ME)
- (ix) Water and Seaplane characteristics (S)
- (x) Seaplane bases, maritime rules and aids to marine navigation (S)
- (xi) Aeromedical factors

(2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Pre-flight inspection
- (ii) Cockpit management
- (iii) Engine Starting
- (iv) Taxiing (L)
- (v) Taxiing and sailing (S)
- (vi) Before take-off check

(3) Aerodrome and seaplane base operations; including the applicant's knowledge and performance of the following tasks-

- (i) Radio communications and ATC light signals
- (ii) Traffic patterns
- (iii) Aerodrome/Seaplane base, runway and taxiway signs, markings and lighting

(4) Take-offs, landings and go-arounds; including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind take-off and climb
- (ii) Normal and crosswind approach and landing
- (iii) Soft-field take-off and climb (SE)
- (iv) Soft-field approach and landing (SE)
- (v) Short-field (Confined area (S)) take-off and maximum performance climb
- (vi) Short-field (Confined area (S)) approach and landing
- (vii) Glassy water take-off and climb (S)
- (viii) Glassy water approach and landing (S)
- (ix) Rough water take-off and climb (S)
- (x) Rough water approach and landing (S)
- (xi) Power-off 180 degrees accuracy approach and landing (SE)
- (xii) Go-around /rejected landing

(5) Performance manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Steep turns
- (ii) Steep spiral (SE)
- (iii) Chandelles (SE)
- (iv) Lazy eights (SE)

(6) Ground reference manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Eights on pylons (SE)

(7) Navigation; including the applicant's knowledge and performance of the following tasks-

- (i) Pilotage and dead reckoning
- (ii) Navigation systems and radar services
- (iii) Diversion
- (iv) Lost procedures

(8) Slow flight and stalls; including the applicant's knowledge and performance of the following tasks-

- (i) Manoeuvring during slow flight
- (ii) Power-off stalls
- (iii) Power-on stalls
- (iv) Spin awareness

(9) Emergency operations; including the applicant's knowledge and performance of the following tasks-

- (i) Emergency approach and landing
- (ii) Emergency descent (ME)
- (iii) Engine failure during take-off before VMC (simulated) (ME)
- (iv) Engine failure after lift-off (simulated) (ME)
- (v) Approach and landing with an inoperative engine (simulated) (ME)
- (vi) Systems and equipment malfunctions
- (vii) Emergency equipment and survival gear

(10) High altitude operations; including the applicant's knowledge and performance of the following tasks-

- (i) Supplemental oxygen
- (ii) Pressurization

(11) Multi-engine operations (ME); including the applicant's knowledge and performance of the following tasks-

- (i) Manoeuvring with one engine inoperative
- (ii) Vmc demonstration
- (iii) Engine failure during flight (by reference to instruments)
- (iv) Instrument approach-one engine inoperative (by reference to instruments)

(12) Post-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) After landing, parking and securing
- (ii) Anchoring (S)
- (iii) Docking and mooring (S)
- (iv) Ramping/beaching (S)

IS 2.3.3.4 APPENDIX A: AIRLINE TRANSPORT PILOT LICENCES (A) – KNOWLEDGE

- (a) The knowledge instruction and test for the airline transport pilot licences – aeroplane shall include at least the following subjects:

(1) Air law

- (i) International Agreements and Organisations: The Convention of Chicago; Other International agreements: IATA agreement, Tokyo and Warsaw Convention; PIC authority and responsibility regarding safety and security; Operators and pilots liabilities towards persons and goods on the ground; in case of damage and injury caused by the operation of the aircraft; Commercial practices and associated rules: dry and wet lease;

- (ii) Relevant parts of ICAO Annexes: 1, 2, 7, 8, 9, 11 (and doc 4444), 12, 13, 14, 15, 17;
- (iii) Procedures for air navigation – aircraft operations Doc 8168;
- (iv) National law;

(2) Aircraft general knowledge

- (i) Airframe and systems, electrics, powerplant; emergency equipment

(A) Airframe and systems: Fuselage; Cockpit and cabin windows; Wings, Stabilising surfaces; Landing Gear; Flight Controls; Hydraulics; Air driven systems (piston engines only); Air driven systems (turbo-propeller and jet aircraft); Non-pneumatic operated de-ice and anti-ice systems; Fuel system;

(B) Electrics: Direct Current (DC); Alternating Current (AC); Semiconductors; Basic knowledge of computers; Basic radio propagation theory;

(C) Powerplant: Piston Engine; Turbine Engine; Engine construction; Engine systems, Auxiliary Power Unit (APU);

(D) Emergency equipment: Doors and emergency exits; Smoke detection; Fire detection; Firefighting equipment; Aircraft oxygen equipment; Emergency equipment;

- (ii) Instrumentation

(A) Flight instruments: Air data instruments; Gyroscopic instruments; Magnetic Compass; Radio Altimeter; Electronic Flight Instrument System (EFIS); Flight Management System (FMS);

(B) Automatic flight control system: Flight director, Autopilot; Flight envelope protection; Yaw damper/ Stability augmentation system, Automatic pitch trim; Thrust computation, Auto-thrust;

(C) Warning and recording equipment: Warnings general; Altitude alert system; Ground proximity warning system (GPWS); Traffic collision avoidance system (TCAS), Overspeed warning; Stall warning, Flight data recorder; Cockpit voice recorder;

(D) Powerplant and system monitoring instruments: Pressure gauge, Temperature gauge, RPM indicator, Consumption gauge; Fuel gauge; Torque meter; Flight hour meter; Vibration motoring; Remote (signal) transmission system; Electronic Displays;

(3) Flight performance and planning

- (i) Mass and balance: Centre of gravity, Mass and balance limits;
- (ii) Loading: Terminology; Aircraft mass checks; Procedures for determining aeroplane mass and balance documentation; Effects of overloading;
- (iii) Centre of gravity: Basis of cg calculations (load and balance documentation); Calculation of cg; Securing of loading; Area load; running load, supporting;
- (iv) Performance of single-engine aeroplanes not certified under FAR/JAR 25 – Performance class B: Definitions of terms and speeds; Take-off and landing performance; Climb and cruise performance;
- (v) Performance of multi-engine aeroplanes not certified under FAR/JAR 25 – Performance class B: Definitions of terms and speeds; Importance of performance calculations; Elements of performance, Use of performance graphs and tabulated data;

- (vi) Performance of aeroplanes certified under FAR/JAR 25 – Performance class A: Take-off, Accelerate-stop distance, Initial Climb; Climb; Cruise; Descent and landing; Practical application of an airplane performance manual;
- (vii) Flight planning and flight monitoring:
 - (A) Flight plan for cross country flights: Navigation plan; Fuel plan; Flight monitoring and in-flight replanning; Radio communication and navigation aids;
 - (B) ICAO ATC flight plan: Types of flight plan; Completing the flight plan; Filling the flight plan; Closing the flight plan; Adherence to flight plan;
 - (C) Practical flight planning: Chart preparation; Navigation plans; Simple fuel plans; Radio planning practice;
 - (i) IFR (airways) flight planning: Meteorological considerations; Selection of routes to destination and alternates; General flight planning tasks;
 - (D) Jet aeroplanes flight planning: Additional flight planning aspects for jet aeroplanes (advanced flight planning); Computerised flight planning;
 - (E) Practical completion of a flight plan (flight plan, flight log, nav log, ATC plan, etc.): Extraction of data;

(4) Human performance

- (i) Human factors basic concepts: Human factors in aviation; Accident statistics; Flight safety concepts;
- (ii) Basic aviation physiology: Basics of flight physiology; Man and environment: the sensory system; Health and Hygiene;

(5) Meteorology

- (iii) Basic aviation psychology: Human information processing; Human error and reliability; Decision making; Avoiding and managing errors: cockpit management; Personality; Human overload and underload, Advanced cockpit automation
- (i) The atmosphere: Composition, extent, vertical division; Temperature; Atmospheric pressure; Atmospheric density; International Standard Atmosphere (ISA); Altimetry;
- (ii) Wind: Definition and measurement; Primary cause of wind; General circulation; Turbulence; Variation of wind with height; Local winds; Jet streams; Standing waves;
- (iii) Thermodynamics: Humidity; Change of state of aggregation; Adiabatic processes
- (iv) Clouds and Fog: Cloud formation and description; Fog, mist, haze
- (v) Precipitation: Development; Types;
- (vi) Airmasses and fronts: Types of airmasses; Fronts;
- (vii) Pressure systems: Location of the principal pressure areas, Anticyclone, Non frontal depressions; Tropical revolving storms
- (viii) Climatologic: Climatology zones; Tropical climatology; Typical weather situations in mid-latitudes; Local seasonal weather and wind
- (ix) Flight hazards: Icing, Turbulence; Windshear; Thunderstorms; Tornadoes; Low and high level inversions; Stratospheric conditions; Hazards in mountainous areas; Visibility reducing phenomena;
- (x) Meteorological information: Observation, Weather charts, Information for flight planning

(6) Navigation:

- (i) General Navigation: Basics of navigation: The solar system; The earth, Time and time conversions; Directions, Distance
- (ii) Magnetism and compasses: General Principles, Aircraft magnetism, Knowledge of the principles, standby and landing or main compasses and remote reading compasses
- (iii) Charts: General properties of miscellaneous types of projections; The representation of meridians, parallels, great circles and rhumb lines; The use of current aeronautical charts
- (iv) Dead reckoning navigation (DR): Basics of dead reckoning; Use of the navigational computer; The triangle of velocities; Determination of DR position; Measurement of DR elements; Resolution of current DR problems; Measurements of maximum range, radius of action and point-of-safe-return and point-of-equal-time
- (v) In-flight navigation: Use of visual observations and application to in-flight navigation; Navigation in climb and descent; Navigation in cruising flight, use of fixes to revise navigation data; Flight log (including navigation records); Purposes of FMS (flight management systems); Inertial navigation systems (INS): Principles and practical application; Alignment procedures; Accuracy, reliability, errors and coverage, INS operation;
- (vi) Radio Navigation: Radio aids: Ground D/F (including classification of bearings); ADF (including associated beacons and use of the radio magnetic indicator); VOR and Doppler-VOR (including the use of the radio magnetic indicator); DME (distance measuring equipment); ILS (instrument landing system); MLS (Microwave landing system);

- iii. Basic radar principles: Pulse techniques and associated terms; Ground radar; Airborne weather radar; SSR (secondary surveillance radar and transponder); Use of radar observations and application to in-flight navigation;
- iv. Area navigation systems: General philosophy; Typical flight deck equipment and operation; Instrument indications; Types of area navigation system inputs; VOR/DME area navigation (RNAV); Flight director and autopilot coupling;
- v. Self-contained and external-referenced navigation systems: Doppler; Loran-C; Decca navigation system; Satellite assisted navigation: GPS/GLONASS/DGPS

(7) Operational procedures

- (i) ICAO Annex 6 Parts I, II and III (as applicable); Navigation requirements for long-range flights;
- (ii) Special operational procedures and hazards: Minimum equipment list; Ground icing; Bird strike risk and avoidance; Noise abatement; Fire/smoke; Decompression of pressurised cabin; Windshear, microburst; Wake turbulence; Security; Emergency and precautionary landings; Fuel jettisoning; Transport of dangerous goods; Contaminated runways;

(8) Principles of flight:

- (i) Basics, laws and definitions; The two-dimensional airflow about an aerofoil; The coefficients; The three-dimensional airflow about an aeroplane; The total drag; The ground effect; The relation between the lift coefficient and the speed for constant lift; The stall; Climax augmentation; Means to decrease the CL-CD ratio, increasing drag; The boundary layer; Special circumstances;

- (ii) Transonic aerodynamics: The Mach number definition, Normal shockwaves; Means to avoid the effects of exceeding Mcrit
- (iii) Supersonic aerodynamics: Oblique shockwaves
- vi. Stability: Condition of equilibrium in stable horizontal flight; Methods of achieving balance; Longitudinal stability; Static directional stability; Static lateral stability; Dynamic lateral stability;
- (iv) Control: General; Pitch control; Yaw control; Roll control; Interaction in different planes (yaw/roll); Means to reduce control forces; Mass balance; Trimming;
- (v) Limitations: Operating limitations; Manoeuvring envelope; Gust envelope;
- (vi) Propellers: Conversion of engine torque to thrust; Engine failure or engine stop; Design feature for power absorption; Moments and couples due to propeller operation;
- (vii) Flight mechanics: Forces acting on an aeroplane; Asymmetric thrust; Emergency descent; Windshear;

(9) **Radiotelephony:**

- (i) VFR Communications: Definitions; General operating procedures; Relevant weather information terms (VFR); Action required to be taken in case of communication failure; distress and urgency procedures; General principles of VHF propagation and allocation of frequencies;
- (ii) IFR Communications: Definitions; General operating procedures; Action required to be taken in case of communication failure; distress and urgency procedures; General principles of VHF propagation and allocation of frequencies;
- (iii) Morse code.

IS 2.3.3.4 APPENDIX B: AIRLINE TRANSPORT PILOT LICENCES (A) - FLIGHT INSTRUCTION AND SKILL TEST

- (a) The flight instruction and skill test for the airline transport pilot licences- aeroplanes shall include CRM and at least the following areas of operation:
 - (1) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-
 - (i) Equipment examination
 - (ii) Performance and limitations
 - (2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-
 - (i) Pre-flight inspection
 - (ii) Powerplant start
 - (iii) Taxiing
 - (iv) Before takeoff checks
 - (3) Take-offs and departure phase; including the applicant's knowledge and performance of the following tasks-
 - (i) Normal takeoffs with different flap settings, including expedited take-off
 - (ii) Instrument takeoff;
 - (iii) Powerplant failure during takeoff
 - (iv) Rejected takeoff
 - (v) Departure procedures
 - (4) In-flight manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Steep turns
- (ii) Approach to stalls
- (iii) Powerplant failure
- (iv) Specific flight characteristics
- (v) Recovery from unusual altitudes.

(5) Instrument procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Standard terminal arrival/flight management system procedures
- (ii) Holding procedures
- (iii) Precision instrument approaches
- (iv) Non-precision instrument approaches
- (v) Circling approach
- (vi) Missed approach

(6) Landings and approaches to landings; including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind approaches and landings
- (ii) Landing from a precision approach
- (iii) Approach and landing with (simulated) powerplant failure
- (iv) Landing from a circling approach
- (v) Rejected landing
- (vi) Landing from a no-flap or a non-standard flap approach.

(7) Normal and abnormal procedures

(8) Emergency procedures

(9) Post-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) After landing procedures
- (ii) Parking and securing

IS 2.3.3.5 APPENDIX A: INSTRUMENT RATING (A AND H) - KNOWLEDGE

(a) The knowledge instruction and test for the instrument rating – aeroplane and helicopter shall include at least the following subjects:

(1) Air law

(i) International Agreements and Organisations: The Convention of Chicago; Other International agreements: IATA agreement, Tokyo and Warsaw Convention; PIC authority and responsibility regarding safety and security, Operators and pilots liabilities towards persons and goods on the ground, in case of damage and injury caused by the operation of the aircraft, Commercial practices and associated rules: dry and wet lease

(ii) Relevant parts of ICAO Annexes: 1, 2, 7, 8, 9, 11 (and doc 4444), 12, 13, 14, 15;

(iii) Procedures for air navigation – aircraft operations Doc 8168;

(iv) National law

(2) Aircraft general knowledge

(i) Airframe and systems, electrics, powerplant, emergency equipment

(A) Airframe and systems: Air driven systems (piston engines only), Air driven systems (turbopropeller and jet aircraft), Non-pneumatic operated de-ice and anti-ice systems, Fuel systems

(B) Electrics: Direct Current (DC), Basic radio propagation theory

(C) Flight instruments: Air data instruments, Gyroscopic instruments, Magnetic Compass, Radio Altimeter, Electronic Flight Instrument System (EFIS), Flight Management System (FMS)

(D) Automatic flight control system: Flight director; Autopilot; Yaw damper/Stability augmentation system;

(E) Warning and recording equipment: Warnings general; Stall warning;

(3) Flight performance and planning

(i) Flight planning and flight monitoring:

(A) Navigation plan, Fuel plan, Flight monitoring and in-flight replanning, Radio communication and navigation aids;

(B) ICAO ATC flight plan: Types of flight plan, completing the flight plan, Filling the flight plan, Closing the flight plan, Adherence to flight plan

(C) Practical flight planning: Chart preparation; Navigation plans; Simple fuel plans, Radio planning practice

(D) IFR (airways) flight planning: Meteorological considerations, Selection of routes to destination and alternates, General flight planning tasks,

(E) Practical completion of a flight plan (flight plan, flight log, nav log, ATC plan, etc.): Extraction of data

(4) Human performance

(i) Human factors basic concepts: Human factors in aviation, Accident statistics, Flight safety concepts

(ii) Basic aviation physiology: Basics of flight physiology, Man and environment: the sensory system; Health and Hygiene;

(iii) Basic aviation psychology: Human information processing; Human error and reliability; Decision making; Avoiding and managing errors: cockpit management; Personality; Human overload and underload, Advanced cockpit automation

(5) Meteorology

(i) The atmosphere: Composition, extent, vertical division; Temperature; Atmospheric pressure; Atmospheric density; Altimetry;

(ii) Wind: Definition and measurement; General circulation; Turbulence; Variation of wind with height; Local winds; Standing waves;

(iii) Thermodynamics: Humidity; Change of state of aggregation; Adiabatic processes

(iv) Clouds and Fog: Cloud formation and description; Fog, mist, haze

(v) Precipitation: Development and types of precipitation;

(vi) Airmasses and fronts: Types of airmasses; Fronts;

(vii) Pressure systems: Location of the principal pressure areas, Anticyclone, Non frontal depressions;

- (viii) Climatology: Typical weather situations in mid-latitudes; Local seasonal weather and wind
- (ix) Flight hazards: Icing, Turbulence; Windshear; Thunderstorms; Low and high level inversions; Hazards in mountainous areas;
- (x) Meteorological information: Observation, Weather charts, Information for flight planning

(6) Navigation:

- (i) General Navigation:
- (ii) Charts: The use of current aeronautical charts
- (iii) Radio Navigation: Radio aids: Ground D/F (including classification of bearings); ADF (including associated beacons and use of the radio magnetic indicator); VOR and Doppler-VOR (including the use of the radio magnetic indicator); DME (distance measuring equipment); ILS (instrument landing system); MLS (Microwave landing system);
- (iv) Basic radar principles: Pulse techniques and associated terms; Ground radar; Airborne weather radar; SSR (secondary surveillance radar and transponder); Use of radar observations and application to in-flight navigation;
- (v) Area navigation systems: General philosophy; Typical flight deck equipment and operation; Instrument indications; Types of area navigation system inputs; VOR/DME area navigation (RNAV);
- (vi) Self-contained and external-referenced navigation systems: Satellite assisted navigation: GPS/GLONASS/DGPS

(7) Operational procedures

- (i) General
- (ii) Special operational procedures and hazards: General

(8) Radiotelephony:

- (i) IFR Communications: Definitions; General operating procedures; Action required to be taken in case of communication failure; distress and urgency procedures; General principles of VHF propagation and allocation of frequencies; Morse code.

IS 2.3.3.5 APPENDIX B: INSTRUMENT RATING (AANDH) - FLIGHT INSTRUCTION, SKILL TEST AND PROFICIENCY CHECK

- (a) The flight instruction, skill test and proficiency check for the instrument rating – aeroplane and helicopter shall include at least the following areas of operation:

Note: When (SE) is indicated the item or paragraph is only for single-engine, when (ME) is indicated the item or paragraphs is only for multi-engine. When nothing is indicated the item or paragraph is for single-engine and multi-engine.

(1) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-

- (i) Weather information
- (ii) Cross-country flight planning

(2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Aircraft systems related to IFR operations
- (ii) Aircraft flight instruments and navigation equipment
- (iii) Instrument cockpit check

(3) Air traffic control clearances and procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Air traffic control clearances
- (ii) Compliance with departure, enroute and arrival procedures and clearances
- (iii) Holding procedures

(4) Flight by reference to instruments; including the applicant's knowledge and performance of the following tasks-

- (i) Straight-and-level flight
- (ii) Change of airspeed
- (iii) Constant airspeed climbs and descents
- (iv) Rate climbs and descents
- (v) Timed turns to magnetic compass headings
- (vi) Steep turns
- (vii) Recovery from unusual flight attitudes

(5) Navigation systems; including the applicant's knowledge and performance of the following tasks-

(i) Intercepting and tracking navigational systems and DME Arcs

(6) Instrument approach procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Non-precision instrument approach
- (ii) Precision ILS instrument approach
- (iii) Missed approach
- (iv) Circling approach
- (v) Landing from a straight-in or circling approach

(7) Emergency operations; including the applicant's knowledge and performance of the following tasks-

- (i) Loss of communications
- (ii) One engine inoperative during straight-and-level flight and turns (ME)
- (iii) One engine inoperative – instrument approach (ME)
- (iv) Loss of gyro attitude and/or heading indicators

(8) Post-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Checking instruments and equipment

IS 2.3.3.6 APPENDIX A: PRIVATE PILOT LICENCES (H) – KNOWLEDGE

(b) The knowledge instruction and test for the private pilot licences - helicopter shall include at least the following subjects:

(9) Air law

- (i) Relevant parts of ICAO Convention and Annexes 2, 7, 8, 11 and 14
- (ii) ICAO Document 4444: General provisions, Area control service, Approach control service, Aerodrome control service, Flight information and alerting service
- (iii) National law;

(10) Aircraft General Knowledge

- (i) Airframe: Rotors; Airframe structure and loads
- (ii) Powerplant: Piston engine; Engines general, lubrication system, air cooling, ignition systems, engine fuel supply, engine performance, power augmentation devices, fuel, mixture, engine handling and manipulation, operational criteria,

- (iii) Systems: electrical system, hydraulic system
- (iv) Instruments: Pitot/static system, Airspeed indicator, Altimeter, Vertical speed indicator, Gyroscopes, Turn indicator, Altitude indicate, Heading indicator, Magnetic compass, Engine instruments, Other instruments
- (v) Airworthiness

(11) Flight Performance and Planning

- (i) Mass and balance
- (ii) Performance: Take-off, Landing, In flight

(12) Human performance:

- (i) Basic physiology: Concepts, Effects of partial pressure, Vision, Hearing, Motion sickness, Flying and health, Toxic hazards
- (ii) Basic psychology: The information process, the central decision channel, stress, judgement and decision making

(13) Meteorology

- (i) The atmosphere, Pressure, density and temperature, Humidity and precipitation, Pressure and wind, Cloud information, Fog, mist and haze, Airmasses, Frontology, Ice accretion, Thunderstorms, Flight over mountainous areas, Climatology, Altimetry, The meteorological organisation, Weather analysis and forecasting, Weather information for flight planning, Meteorological broadcasts for aviation

(14) Navigation

- (i) Form of the earth, Mapping, Conformal conic projection, Direction, Helicopter magnetism, Distances, Charts in practical navigation, Chart reference material/map reading, Principles of navigation, The navigation computer, Time, Flight planning, Practical navigation
Radio navigation: Ground directory finding (D/F), Automatic directory finding (ADF), including associated beacons (non-directional beacons (NDBs)) and use of the radio magnetic indicator (RMI), VHF omnidirectional range/distance measuring equipment (VOR/DME), GPS, Ground radar, Secondary surveillance radar

(15) Operational Procedures

- (i) Relevant parts of ICAO Annex 6, Part III, Annex 12, 13 and 16 (relevant parts), Contravention of aviation regulations

(16) Principles of Flight

- (i) The atmosphere, Airflow around a body, Sub-sonic, Airflow about a two dimensional aerofoil, Three dimensional flow about an aerofoil, Rotor aerodynamics, Flying controls, Stability, Load factor and manoeuvres, Stress loads on the ground, Helicopter specific hazards

(17) Communications

- (i) Radio telephony and communications, Departure procedures, Enroute procedures, Arrival and traffic pattern procedures, Communications failure, Distress and urgency procedures

IS 2.3.3.6 APPENDIX B: PRIVATE PILOT LICENCES (H) – FLIGHT INSTRUCTION AND SKILL TEST

- (a) The flight instruction and skill test for the private pilot licences - helicopter shall include at least the following areas of operation:

(1) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-

- (i) Licences and documents
- (ii) Weather information
- (iii) Cross-country flight planning
- (iv) National airspace system
- (v) Performance and limitations
- (vi) Operation of system
- (vii) Minimum equipment list
- (viii) Aeromedical factors

(2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Pre-flight inspection
- (ii) Cockpit management
- (iii) Engine Starting and rotor engagement
- (iv) Before take-off check

(3) Aerodrome and heliport operations; including the applicant's knowledge and performance of the following tasks-

- (i) Radio communications and ATC light signals
- (ii) Traffic patterns
- (iii) Aerodrome and heliport markings and lighting

(4) Hovering manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Vertical take-off and landing
- (ii) Slope operations
- (iii) Surface taxi
- (iv) Hover taxi
- (v) Air taxi

(5) Take-offs, landings and go-arounds; including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind take-off and climb
- (ii) Normal and crosswind approach
- (iii) Maximum performance take-off and climb
- (iv) Steep approach
- (v) Rolling take-off
- (vi) Shallow approach and running/roll-on landing
- (vii) Go-around

(6) Performance manoeuvre; including the applicant's knowledge and performance of the following tasks-

- (i) Rapid deceleration
- (ii) Straight in autorotation

(7) Navigation; including the applicant's knowledge and performance of the following tasks-

- (i) Pilotage and dead reckoning
- (ii) Radio navigation and radar services
- (iii) Diversion
- (iv) Lost procedures

(8) Emergency operations; including the applicant's knowledge and performance of the following tasks-

- (i) Power failure at a hover
- (ii) Power failure at altitude
- (iii) Systems and equipment malfunctions
- (iv) Settling-with-power
- (v) Low rotor RPM recovery
- (vi) Dynamic rollover
- (vii) Ground resonance
- (viii) Low G conditions
- (ix) Emergency equipment and survival gear

(9) Night operation; including the applicant's knowledge and performance of the following tasks-

- (i) Physiological aspects of night flying
- (ii) Lighting and equipment for night flying

(10) Post-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) After landing and securing

IS 2.3.3.7 APPENDIX A: COMMERCIAL PILOT LICENCES (H) – KNOWLEDGE

- (a) The knowledge instruction and test for the commercial pilot licences – helicopter shall include at least the following subjects:

(1) Air law

- (i) International Agreements and Organisations: The Convention of Chicago; Other International agreements: IATA agreement, Tokyo and Warsaw Convention; PIC authority and responsibility regarding safety and security; Operators and pilots liabilities towards persons and goods on the ground; in case of damage and injury caused by the operation of the aircraft; Commercial practices and associated rules: dry and wet lease;
- (ii) Relevant parts of ICAO Annexes: 1, 2, 7, 8, 9, 11 (and doc 4444), 12, 13, 14, 15, 17;
- (iii) Procedures for air navigation – aircraft operations Doc 8168;
- (iv) National law;

(2) Aircraft general knowledge

- (i) Airframe and systems, electrics, powerplant; emergency equipment

- (A) Airframe and systems: Helicopter configurations; Controls and rotors; Cockpit and cabin; Landing Gear; Transmission systems; Rotorbrake; Inspection; Hydraulics; Air driven systems, De-ice and anti-ice systems, Fuel system
 - (B) Electrics: Direct Current (DC); Alternating Current (AC); Semiconductors; Basic knowledge of computers; Basic radio propagation theory;
 - (C) Powerplant: Piston Engine; Turbine Engine; Engine construction; Engine systems, Auxiliary Power Unit (APU);
 - (D) Emergency equipment: Doors and emergency exits; Smoke detection; Fire detection; Firefighting equipment; Aircraft oxygen equipment; Emergency equipment;
- (ii) Instrumentation
- (A) Flight instruments: Air data instruments; Gyroscopic instruments; Magnetic Compass; Radio Altimeter; Electronic Flight Instrument System (EFIS); Flight Management System (FMS);
 - (B) Automatic flight control system: Flight director, Autopilot; Flight envelope protection; Yaw damper/ Stability augmentation system;
 - (C) Warning and recording equipment: Warnings general; Altitude alert system; Ground proximity warning system (GPWS); Traffic collision avoidance system (TCAS), Overspeed warning; Flight data recorder; Cockpit voice recorder; Rotors and engine over/underspeed warning;
 - (D) Powerplant and system monitoring instruments: Pressure gauge, Temperature gauge, RPM indicator, Consumption gauge; Fuel gauge; Torque meter; Flight hour meter; Remote (signal) transmission system; Electronic Displays; Chip detection;

- (3) Flight performance and planning
- (i) (i) Mass and balance: Centre of gravity, Mass and balance limits;
 - (ii) Loading: Terminology; Aircraft mass checks; Procedures for determining helicopter mass and balance documentation; Effects of overloading;
 - (iii) Centre of gravity: Basis of cg calculations (load and balance documentation); Calculation of cg; Securing of load; Area load, running load, supporting;
 - (iv) Performance: Airworthiness Requirements; Definitions of terms; Take off – Cruise – Landing Performance;
 - (v) Flight planning and flight monitoring:
 - (A) Flight plan for cross country flights: Navigation plan; Fuel plan; Flight monitoring and in-flight replanning; Radio communication and navigation aids;
 - (B) ICAO ATC flight plan: Types of flight plan; Completing the flight plan; Filling the flight plan; Closing the flight plan; Adherence to flight plan;
 - (C) Practical flight planning: Chart preparation; Navigation plans; Simple fuel plans; Radio planning practice;
 - (D) Practical completion of a flight plan (flight plan, flight log, nav log, ATC plan, etc.): Extraction of data;
 - (E) Offshore or remote area operation: Additional flight planning aspects for offshore or remote area operation; Computerised flight planning;
- (4) Human performance
- (i) Human factors basic concepts: Human factors in aviation; Accident statistics; Flight safety concepts;
 - (ii) Basic aviation physiology: Basics of flight physiology; Man and environment: the sensory system; Health and Hygiene;

- (iii) Basic aviation psychology: Human information processing; Human error and reliability; Decision making; Avoiding and managing errors: cockpit management; Personality; Human overload and underload, Advanced cockpit automation

(5) Meteorology

- (i) The atmosphere: Composition, extent, vertical division; Temperature; Atmospheric pressure; Atmospheric density; Altimetry;
- (ii) Wind: Definition and measurement; General circulation; Turbulence; Variation of wind with height; Local winds; Standing waves;
- (iii) Thermodynamics: Humidity; Change of state of aggregation; Adiabatic processes
- (iv) Clouds and Fog: Cloud formation and description; Fog, mist, haze
- (v) Precipitation
- (vi) Airmasses and fronts: Types of airmasses; Fronts;
- (vii) Pressure systems: Location of the principal pressure areas, Anticyclone, Non frontal depressions; Tropical revolving storms
- (viii) Climatology: Climatology zones; Tropical climatology; Typical weather situations in mid-latitudes; Local seasonal weather and wind
- (ix) Flight hazards: Icing, Turbulence; Windshear; Thunderstorms; Tornadoes; Low and high level inversions; Stratospheric conditions; Hazards in mountainous areas;
- (x) Meteorological information: Observation, Weather charts, Information for flight planning

(6) Navigation:

- (i) General Navigation: Basics of navigation: The solar system; The earth, Time and time conversions; Directions, Distance
- (ii) Magnetism and compasses: General Principles, Aircraft magnetism, Knowledge of the principles, standby and landing or main compasses and remote reading compasses
- (iii) Charts: General properties of miscellaneous types of projections; The representation of meridians, parallels, great circles and rhumb lines; The use of current aeronautical charts
- (iv) Dead reckoning navigation (DR): Basics of dead reckoning; Use of the navigational computer; The triangle of velocities; Determination of DR position; Measurement of DR elements; Resolution of current DR problems; Measurements of maximum range, radius of action and point-of-safe-return and point-of-equal-time
- (v) In-flight navigation: Use of visual observations and application to in-flight navigation; Navigation in climb and descent; Navigation in cruising flight, use of fixes to revise navigation data; Flight log (including navigation records); Purposes of FMS (flight management systems);
- (vi) Radio Navigation: Radio aids: Ground D/F (including classification of bearings); ADF (including associated beacons and use of the radio magnetic indicator); VOR and Doppler-VOR (including the use of the radio magnetic indicator); DME (distance measuring equipment);
- (vii) Basic radar principles: Pulse techniques and associated terms; Ground radar; SSR (secondary surveillance radar and transponder); Use of radar observations and application to in-flight navigation;

- (viii) Area navigation systems: Flight director and autopilot coupling;
 - (ix) Self-contained and external-referenced navigation systems: Doppler; Loran-C; Decca navigation system; Satellite assisted navigation: GPS/GLONASS/DGPS
- (7) Operational procedures
- (i) ICAO Annex 6 Parts I, II and III (as applicable);
 - (ii) Special operational procedures and hazards: Minimum equipment list; Ground icing; Bird strike risk and avoidance; Noise abatement; Fire/smoke; Windshear, microburst; Wake turbulence; Security; Emergency and precautionary landings; Fuel jettisoning; Transport of dangerous goods; Contaminated runways; Rotor down wash; Operation influence by meteorological conditions;
 - (iii) Emergency procedures;
- (8) Principles of flight:
- (i) Subsonic Aerodynamics: Basic laws and definitions; Derivation of lift; Drag; Distribution of forces – balance of couples; Stability; Blade-stall; Transonic effects on blades; Limitations; Performance degradation;
 - (ii) Helicopter aerodynamics: The helicopter and associated terminology; The forces diagram and associated terminology; Uniformity of rotor thrust along blade span; Helicopter controls; Rotor blade freedom of movement; Phase lag and advance angle; Vertical flight; Forces in balance; Transitional lift; Power requirements; Further aerodynamics of forward flight; Factors affecting cyclic stick limits; The flare – power flight; Settling with power (vortex ring); Blade sailing; Autorotation – vertical; Autorotation - forward flight; Stability; Control power; Power requirements – graphs;

(9) Radiotelephony:

- (i) VFR Communications: Definitions; General operating procedures; Relevant weather information terms (VFR); Action required to be taken in case of communication failure; distress and urgency procedures; General principles of VHF propagation and allocation of frequencies;
- (ii) Morse code.

IS 2.3.3.7 APPENDIX B: COMMERCIAL PILOT LICENCES (H) – FLIGHT INSTRUCTION AND SKILL TEST

- (a) The flight instruction and skill test for the commercial pilot licences – helicopter shall include at least the following areas of operation:
 - (1) Pre-flight preparation; including the applicant’s knowledge and performance of the following tasks-
 - (i) Licences and documents
 - (ii) Weather information
 - (iii) Cross-country flight planning
 - (iv) National airspace system
 - (v) Performance and limitations
 - (vi) Operation of system
 - (vii) Minimum equipment list
 - (viii) Aeromedical factors
 - (ix) Physiological aspects of night flying
 - (x) Lighting and equipment for night flying

(2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Pre-flight inspection
- (ii) Cockpit management
- (iii) Engine Starting and rotor engagement
- (iv) Before take-off check

(3) Aerodrome and heliport operations; including the applicant's knowledge and performance of the following tasks-

- (i) Radio communications and ATC light signals
- (ii) Traffic patterns
- (iii) Aerodrome and heliport markings and lighting

(4) Hovering manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Vertical take-off and landing
- (ii) Slope operations
- (iii) Surface taxi
- (iv) Hover taxi
- (v) Air taxi

(5) Take-offs, landings and go-arounds; including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind take-off and climb
- (ii) Normal and crosswind approach and landing

(iii) Maximum performance take-off and climb

(iv) Steep approach

(v) Rolling take-off

(vi) Shallow approach and running/roll-on landing

(vii) Go-around

(6) Performance manoeuvre; including the applicant's knowledge and performance of the following tasks-

- (i) Rapid deceleration
- (ii) 180 Degrees autorotation

(7) Navigation; including the applicant's knowledge and performance of the following tasks-

- (i) Pilotage and dead reckoning
- (ii) Radio navigation and radar services
- (iii) Diversion
- (iv) Lost procedures

(8) Emergency operations; including the applicant's knowledge and performance of the following tasks-

- (i) Power failure at a hover
- (ii) Power failure at altitude
- (iii) Systems and equipment malfunctions
- (iv) Settling-with-power

- (v) Low rotor RPM recovery
- (vi) Dynamic rollover
- (vii) Ground resonance
- (viii) Low G conditions
- (ix) Emergency equipment and survival gear

(9) Special operations; including the applicant's knowledge and performance of the following tasks-

- (i) Confined area operation
- (ii) Pinnacle/platform operations

(10) Post-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) After landing, parking and securing

IS 2.3.3.8 APPENDIX A: AIRLINE TRANSPORT PILOT LICENCES (H) – KNOWLEDGE

- (a) The knowledge instruction and test for the airline transport pilot licences – helicopter shall include at least the following subjects:

(1) Air law

- (i) International Agreements and Organisations: The Convention of Chicago; Other International agreements: IATA agreement, Tokyo and Warsaw Convention; PIC authority and responsibility regarding safety and security; Operators and pilots liabilities towards persons and goods on the ground;

in case of damage and injury caused by the operation of the aircraft; Commercial practices and associated rules: dry and wet lease;

- (ii) Relevant parts of ICAO Annexes: 1, 2, 7, 8, 9, 11 (and doc 4444), 12, 13, 14, 15, 17;
- (iii) Procedures for air navigation – aircraft operations Doc 8168;
- (iv) National law;

(2) Aircraft general knowledge

- (i) Airframe and systems, electrics, powerplant; emergency equipment

(A) Airframe and systems: Helicopter configurations; Controls and rotors; Cockpit and cabin; Landing Gear; Transmission systems; Rotor brake; Inspection; Hydraulics; Air driven systems, De-ice and anti-ice systems, Fuel system

(B) Electrics: Direct Current (DC); Alternating Current (AC); Semiconductors; Basic knowledge of computers; Basic radio propagation theory;

(C) Powerplant: Piston Engine; Turbine Engine; Engine construction; Engine systems, Auxiliary Power Unit (APU);

(D) Emergency equipment: Doors and emergency exits; Smoke detection; Fire detection; Firefighting equipment; Aircraft oxygen equipment; Emergency equipment;

- (ii) Instrumentation

(A) Flight instruments: Air data instruments; Gyroscopic instruments; Magnetic Compass; Radio Altimeter; Electronic Flight Instrument System (EFIS); Flight Management System (FMS);

(B) Automatic flight control system: Flight director, Autopilot; Flight envelope protection; Yaw damper/ Stability augmentation system;

(C) Warning and recording equipment: Warnings general; Altitude alert system; Ground proximity warning system (GPWS); Traffic collision avoidance system (TCAS), Overspeed warning; Flight data recorder; Cockpit voice recorder; Rotors and engine over/underspeed warning;

(D) Powerplant and system monitoring instruments: Pressure gauge, Temperature gauge, RPM indicator, Consumption gauge; Fuel gauge; Torque meter; Flight hour meter; Remote (signal) transmission system; Electronic Displays; Chip detection;

(3) Flight performance and planning

- (i) Mass and balance: Centre of gravity, Mass and balance limits;
- (ii) Loading: Terminology; Aircraft mass checks; Procedures for determining helicopter mass and balance documentation; Effects of overloading;
- (iii) Centre of gravity: Basis of cg calculations (load and balance documentation); Calculation of cg; Securing of load; Area load; running load, supporting;
- (iv) Performance: Airworthiness Requirements; Definitions of terms; Take off – Cruise – Landing Performance;

(v) Flight planning and flight monitoring:

(A) Flight plan for cross country flights: Navigation plan; Fuel plan; Flight monitoring and in-flight replanning; Radio communication and navigation aids;

(B) ICAO ATC flight plan: Types of flight plan; Completing the flight plan; Filling the flight plan; Closing the flight plan; Adherence to flight plan;

(C) Practical flight planning: Chart preparation; Navigation plans; Simple fuel plans; Radio planning practice;

(D) IFR (airways) flight planning: Meteorological considerations; Selection of routes to destination and alternates; General flight planning tasks;

Note: This subsection is only part of the instruction, test or check when an instrument rating is required.

(E) Practical completion of a flight plan (flight plan, flight log, nav log, ATC plan, etc.): Extraction of data;

(F) Offshore or remote area operation: Additional flight planning aspects for offshore or remote area operation; Computerised flight planning;

(4) Human performance

- (i) Human factors basic concepts: Human factors in aviation; Accident statistics; Flight safety concepts;
- (ii) Basic aviation physiology: Basics of flight physiology; Man and environment: the sensory system; Health and Hygiene;
- (iii) Basic aviation psychology: Human information processing; Human error and reliability; Decision making; Avoiding and managing errors: cockpit management; Personality; Human overload and underload, Advanced cockpit automation

(5) Meteorology

- (i) The atmosphere: Composition, extent, vertical division; Temperature; Atmospheric pressure; Atmospheric density; Altimetry;
- (ii) Wind: Definition and measurement; General circulation; Turbulence; Variation of wind with height; Local winds; Jet streams; Standing waves;
- (iii) Thermodynamics: Humidity; Change of state of aggregation; Adiabatic processes
- (iv) Clouds and Fog: Cloud formation and description; Fog, mist, haze
- (v) Precipitation
- (vi) Airmasses and fronts: Types of airmasses; Fronts;
- (vii) Pressure systems: Location of the principal pressure areas, Anticyclone, Non frontal depressions; Tropical revolving storms
- (viii) Climatology: Climatology zones; Tropical climatology; Typical weather situations in mid-latitudes; Local seasonal weather and wind
- (ix) Flight hazards: Icing, Turbulence; Windshear; Thunderstorms; Tornadoes; Low and high level inversions; Stratospheric conditions; Hazards in mountainous areas;
- (x) Meteorological information: Observation, Weather charts, Information for flight planning

(6) Navigation:

- (i) General Navigation: Basics of navigation: The solar system; The earth, Time and time conversions; Directions, Distance

- (ii) Magnetism and compasses: General Principles, Aircraft magnetism, Knowledge of the principles, standby and landing or main compasses and remote reading compasses
- (iii) Charts: General properties of miscellaneous types of projections; The representation of meridians, parallels, great circles and rhumb lines; The use of current aeronautical charts
- (iv) Dead reckoning navigation (DR): Basics of dead reckoning; Use of the navigational computer; The triangle of velocities; Determination of DR position; Measurement of DR elements; Resolution of current DR problems; Measurements of maximum range, radius of action and point-of-safe-return and point-of-equal-time
- (v) In-flight navigation: Use of visual observations and application to in-flight navigation; Navigation in climb and descent; Navigation in cruising flight, use of fixes to revise navigation data; Flight log (including navigation records); Purposes of FMS (flight management systems);
- (vi) Radio Navigation: Radio aids: Ground D/F (including classification of bearings); ADF (including associated beacons and use of the radio magnetic indicator); VOR and Doppler-VOR (including the use of the radio magnetic indicator); DME (distance measuring equipment); ILS (instrument landing system); MLS (Microwave landing system);
- (vii) Basic radar principles: Pulse techniques and associated terms; Ground radar; Airborne weather radar; SSR (secondary surveillance radar and transponder); Use of radar observations and application to in-flight navigation;

- (viii) Area navigation systems: General philosophy; Typical flight deck equipment and operation; Instrument indications; Types of area navigation system inputs; VOR/DME area navigation (RNAV); Flight director and autopilot coupling;

Note: Typical flight deck equipment and operation; Instrument indications; and Types of area navigation system inputs are only part of the instruction, test or check when an instrument rating is required.

- (ix) Self-contained and external-referenced navigation systems: Doppler; Loran-C; Decca navigation system; Satellite assisted navigation: GPS/GLONASS/DGPS

(7) Operational procedures

- (i) ICAO Annex 6 Parts I, II and III (as applicable);
- (ii) Special operational procedures and hazards: Minimum equipment list; Ground icing; Bird strike risk and avoidance; Noise abatement; Fire/smoke; Windshear, microburst; Wake turbulence; Security; Emergency and precautionary landings; Fuel jettisoning; Transport of dangerous goods; Contaminated runways;

(8) Principles of flight:

- (i) Subsonic Aerodynamics: Basic laws and definitions; Derivation of lift; Drag; Distribution of forces – balance of couples; Stability; Blade-stall; Transonic effects on blades; Limitations; Performance degradation;
- (ii) Helicopter aerodynamics: The helicopter and associated terminology; The forces diagram and associated terminology; Uniformity of rotor thrust along blade span; Helicopter controls; Rotor blade freedom of movement;; Phase lag and advance angle;

Vertical flight; Forces in balance; Transitional lift; Power requirements; Further aerodynamics of forward flight; Factors affecting cyclic stick limits; The flare – power flight; Settling with power (vortex ring); Blade sailing; Autorotation – vertical; Autorotation - forward flight; Stability; Control power; Power requirements – graphs;

(9) Radiotelephony:

- (i) VFR Communications: Definitions; General operating procedures; Relevant weather information terms (VFR); Action required to be taken in case of communication failure; distress and urgency procedures; General principles of VHF propagation and allocation of frequencies;
- (ii) IFR Communications: Definitions; General operating procedures; Action required to be taken in case of communication failure; distress and urgency procedures; General principles of VHF propagation and allocation of frequencies;

Note: This subsection is only part of the instruction, test or check when an instrument rating is required.

(iii) Morse code.

IS 2.3.3.8 APPENDIX B: AIRLINE TRANSPORT PILOT LICENCES (H) - FLIGHT INSTRUCTION AND SKILL TEST

- (a) The flight instruction and skill test for the airline transport pilot licences for helicopters shall include CRM and at least the following areas of operation:

(1) Pre-flight preparations and checks; including the applicant's knowledge and performance of the following tasks-

- (i) Equipment examination
- (ii) Performance and limitations

(2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Pre-flight inspection
- (ii) Powerplant Start
- (iii) Taxiing
- (iv) Pre-take-off checks

(3) Take-off and departure phase; including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind take-off
- (ii) Instrument take-off
- (iii) Powerplant failure during take-off
- (iv) Rejected take-off
- (v) Instrument departure

(4) In-flight manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Steep turns
- (ii) Powerplant failure-multi-engine helicopter
- (iii) Powerplant failure-single-engine helicopter
- (iv) Recovery from unusual altitudes
- (v) Settling with power

(5) Instrument procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Instrument arrival
- (ii) Holding
- (iii) Precision instrument approaches
- (iv) Non-precision instrument approaches
- (v) Missed approach

(6) Landings and approaches to landings; including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind approaches and landings
- (ii) Approach and landing with simulated powerplant failure-multiengine helicopter
- (iii) Rejected landing

(7) Normal and abnormal procedures; including the applicant's knowledge and performance of the tasks.

(8) Emergency procedures; including the applicant's knowledge and performance.

(9) Post flight procedures; including the applicant's knowledge and performance of the following tasks-

- vii. After landing procedures
- viii. Parking and securing

IS 2.3.3.10 APPENDIX A: FLIGHT INSTRUCTOR (AANDH) – FLIGHT INSTRUCTION, SKILL TEST AND PROFICIENCY CHECK.

- (a) The flight instruction, skill test and proficiency check for the flight instructor rating - aeroplane and helicopter shall include at least the following areas of operation:

Notes:

(1) When (SE) is indicated the item or paragraph is only for single-engine, when (ME) is indicated the item or paragraphs is only for multi-engine. When nothing is indicated the item or paragraph is for single-engine and multi-engine.

(2) When (A) is indicated the item or paragraph is only for Aeroplane. When (H) is indicated the item or paragraph is only for Helicopter. When nothing is indicated the item or the paragraph is for A and H.

(3) When (S) is indicated, the item is only for seaplanes, when (L) is indicated, the item is only for landplanes. When nothing is indicated the item is for land and seaplanes.

(1) Fundamentals of instruction; including the applicant's knowledge and performance of the following tasks-

- (i) The learning process
- (ii) The teaching process
- (iii) Teaching methods
- (iv) Evaluation
- (v) Flight instructor characteristics and responsibilities
- (vi) Human factors
- (vii) Planning instructional activity

(2) Technical subject areas; including the applicant's knowledge and performance of the following tasks-

- (i) Aeromedical factors
- (ii) Visual Scanning and collision avoidance
- (iii) Principles of flight
- (iv) Aircraft flight controls
- (v) Aircraft weight and balance
- (vi) Navigation and flight planning
- (vii) Night operations

(viii) High altitude operations (A)

(ix) Regulations and publications

(x) Use of minimum equipment list

(xi) National airspace system

(xii) Navigation aids and radar services (A)

(xiii) Logbook entries and licences endorsements

(xiv) Water and seaplane characteristics (S)

(xv) Seaplane bases, rules and aids to marine navigation (S)

(3) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-

(i) Licences and documents

(ii) Weather information

(iii) Operation of systems (SE)

(iv) Performance and limitations (SE)

(v) Airworthiness requirements

(4) Pre-flight lesson on a manoeuvre to be performed in flight; including the applicant's knowledge and performance of the following task-

(i) Manoeuvre lesson

(5) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-

(i) Pre-flight inspection

(ii) Cockpit management

(iii) Engine starting (A)

- (iv) Engine starting and rotor engagement (H)
- (v) Taxiing (A)
- (vi) Sailing (S)
- (vii) Before take-off check

(6) Aerodrome operations and Heliport operations; including the applicant's knowledge and performance of the following tasks-

- (i) Radio communications and ATC light signals
- (ii) Traffic patterns
- (iii) Aerodrome and runway markings and lighting (A)
- (iv) Aerodrome and Heliport Markings and lighting

(7) Take-offs, landings and go-arounds (A); including the applicant's knowledge and performance of the following tasks-

- (i) Normal and crosswind take-off and climb
- (ii) Take-off and maximum performance climb
- (iii) Short field (Confined area (S)) take-off and maximum performance climb
- (iv) Soft field take-off and climb (SE)
- (v) Glossy water take-off and climb (S)
- (vi) Rough water take-off and climb (S)
- (vii) Normal and crosswind approach and landing
- (viii) Slip to a landing (SE)
- (ix) Go-around/rejected landing

- (x) Short field (Confined area (S)) approach and landing
- (xi) Glassy water approach and landing (S)
- (xii) Rough water approach and landing (S)
- (xiii) Soft field approach and landing (SE)
- (xiv) Power-off 180 degrees accuracy approach and landing

(8) Hovering Manoeuvres (H); including the applicant's knowledge and performance of the following tasks-

- (i) Vertical take-off and landing
- (ii) Surface taxi
- (iii) Hover taxi
- (iv) Air taxi
- (v) Slope operation

(9) Fundamentals of flight; including the applicant's knowledge and performance of the following tasks-

- (i) Straight-and-level flight
- (ii) Level turns
- (iii) Straight climbs and climbing turns
- (iv) Straight descents and descending turns

(10) Performance manoeuvres (A) ; including the applicant's knowledge and performance of the following tasks-

- (i) Steep turns
- (ii) Steep spirals (SE)

(11) Performance manoeuvres (H); including the applicant's knowledge and performance of the following tasks-

- (i) Rapid deceleration
- (ii) Straight-in autorotation
- (iii) 180 degrees autorotation

(12) Ground reference manoeuvres (A); including the applicant's knowledge and performance of the following tasks-

- (i) Rectangular course
- (ii) S-turns across a road
- (iii) Turns around a point

(13) Slow flight, stalls and spins (A); including the applicant's knowledge and performance of the following tasks-

- (i) Manoeuvring during slow flight
- (ii) Power-on stalls (proficiency)
- (iii) Power-off stalls (proficiency)
- (iv) Crossed-control stalls (demonstration) (SE)
- (v) Elevator trim stalls (demonstration) (SE)
- (vi) Secondary stalls (demonstration) (SE)
- (vii) Spins (SE)

(14) Basic instrument manoeuvres; including the applicant's knowledge and performance of the following tasks-

- (i) Straight-and-level flight
- (ii) Constant airspeed climbs
- (iii) Constant airspeed descents
- (iv) Turns to headings
- (v) Recovery from unusual flight attitudes

(15) Emergency operations (SE) (A); including the applicant's knowledge and performance of the following tasks-

- (i) Emergency approach and landing (simulated)
- (ii) Systems and equipment malfunctions
- (iii) Emergency equipment and survival gear

(16) (Emergency operations (ME) (A); including the applicant's knowledge and performance of the following tasks-

- (i) Systems and equipment malfunctions
- (ii) Engine failure during take-off before VMC
- (iii) Engine failure after lift-off
- (iv) Approach and landing with an inoperative engine
- (v) Emergency descent
- (vi) Emergency equipment and survival gear

(17) Emergency operations (H); including the applicant's knowledge and performance of the following tasks-

- (i) Power failure at a hover
- (ii) Power failure at altitude
- (iii) Settling-with-power
- (iv) Low rotor RPM recovery
- (v) Antitorque system failure
- (vi) Dynamic rollover
- (vii) Ground resonance
- (viii) Low "G" conditions

- (ix) Systems and equipment malfunctions
- (x) Emergency equipment and survival gear

(18) Multi-engine operations (ME) (A); including the applicant's knowledge and performance of the following tasks-

- (i) Operation of systems
- (ii) Performance and limitations
- (iii) Flight principles – engine inoperative
- (iv) Manoeuvring with one engine inoperative
- (v) VMC demonstration
- (vi) Demonstrating the effects of various airspeeds and configurations during engine inoperative performance

(19) Special operations (H); including the applicant's knowledge and performance of the following tasks-

- (i) Confined area operation
- (ii) Pinnacle/platform operation

(20) Post-flight procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Post-flight procedures
- (ii) Anchoring
- (iii) Docking and mooring
- (iv) Beaching
- (v) Ramping

IS 2.3.3.10 APPENDIX B: FLIGHT INSTRUCTOR FOR INSTRUMENT RATINGS FICIENCY CHECK

- (a) The flight instruction, skill test and proficiency for the flight instructor for instrument ratings – aeroplane and helicopter shall include at least the following areas of operation:

Notes:

(1) When (SE) is indicated the item or paragraph is only for single-engine, when (ME) is indicated the item or paragraphs is only for multi-engine. When nothing is indicated the item and paragraph are for single-engine and multi-engine.

(2) When (A) is indicated the item or paragraph is only for Aeroplane. When (H) is indicated the item or paragraph is only for Helicopter. When nothing is indicated the item and the paragraph are for A and H.

(1) Fundamentals of instructing; including the applicant's knowledge and performance of the following tasks-

- (i) The learning process
- (ii) Human behaviour and effective communication
- (iii) The teaching process
- (iv) Teaching methods
- (v) Critique and evaluation
- (vi) Flight instructor characteristics and responsibilities
- (vii) Planning instructional activity

(2) Technical subject areas; including the applicant's knowledge and performance of the following tasks-

- (i) Aircraft flight instruments and navigation equipment
- (ii) Aeromedical factors
- (iii) Regulations and publications related to IFR operations

(iv) Logbook entries related to instrument instruction

(3) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-

- (i) Weather information
- (ii) Cross-country flight planning
- (iii) Instrument cockpit check

(4) Pre-flight lesson on a manoeuvre to be performed in flight; including the applicant's knowledge and performance of the following task-

- (i) Manoeuvre lesson

(5) Air traffic control clearances and procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Air traffic control clearances
- (ii) Compliance with departure, enroute and arrival procedures and clearances

(6) Flight by reference to instruments; including the applicant's knowledge and performance of the following tasks-

- (i) Straight-and-level flight
- (ii) Turns
- (iii) Change of airspeed in straight-and-level and turning flight
- (iv) Constant airspeed climbs and descents
- (v) Constant rate climbs and descents
- (vi) Timed turns to magnetic compass headings
- (vii) Steep turns

(viii) Recovery from unusual flight altitudes

(7) Navigation systems; including the applicant's knowledge and performance of the following tasks-

- (i) Intercepting and tracking navigational systems and DME Arcs
- (ii) Holding procedures

(8) Instrument approach procedures; including the applicant's knowledge and performance of the following tasks-

- (i) Non-precision instrument approach
- (ii) Precision instrument approach
- (iii) Missed approach
- (iv) Circling approach (A)
- (v) Landing from a straight-in approach

(9) Emergency operations; including the applicant's knowledge and performance of the following tasks-

- (i) Loss of communications
- (ii) Loss of gyro attitude and heading indicators
- (iii) Engine failure during straight-and-level flight and turns
- (iv) Instrument approach – one engine inoperative

(10) Post-flight procedures; including the applicant's knowledge and performance of the following task-

- (i) Checking instruments and equipment

IS 2.3.3.10 APPENDIX C: INSTRUCTOR RATING FOR ADDITIONAL TYPE RATINGS – FLIGHT INSTRUCTION, SKILL TEST AND PROFICIENCY CHECK

- (a) The flight instruction, skill test and proficiency checks for instructors for additional type ratings - aeroplane and helicopter shall include at least the following areas of operation:

Note: When (A) is indicated the item or paragraph is only for Aeroplane. When (H) is indicated the item or paragraph is only for Helicopter. When nothing is indicated the item and the paragraph are for A and H.

(1) Technical subject areas

- (i) The content of the technical subject areas shall cover the areas as applicable to the aircraft class or type.
- (ii) Flight simulator; including the applicant's knowledge and performance of the following tasks-
- (A) Use of checklist, setting of radios/navigation aids
 - (B) Starting engines
 - (C) Take-off checks
 - (D) Instrument take-off, transition to instruments after lift off
 - (E) Engine failure during take-off between V1 and V2 (Aeroplane)
 - (F) Aborted take-off prior to reaching V1 (A)
 - (G) High mach buffeting, specific flight characteristics (if necessary) (A)

- (H) Take-off with engine failure prior to TDP or DPATO or shortly after TDP or DPATO (Helicopter)
 - (I) Steep turns
 - (J) Recovery from approach to stall/take-off, clean landing configuration (Aeroplane)
 - (K) Instrument approach to required minimum decision height or minimum descent height/altitude, manual one engine simulated inoperative during approach and landing or go-around (Aeroplane)
 - (L) Instrument approach to required minimum decision height or minimum descent height/altitude, autopilot one engine simulated inoperative during approach and landing or go-around (Helicopter)
 - (M) Rejected landing and go-around
 - (N) Crosswind landing
- (iii) Category II and II operations, if applicable; including the applicant's knowledge and performance of the following tasks-
- (A) Precision approaches, automatic with auto-throttle and flight director go-around caused by aircraft or ground equipment deficiencies
 - (B) Go-around caused by weather conditions
 - (C) Go-around at DH caused by offset position from centreline
 - (D) One of the CAT II/CAT III approaches must lead to a landing

- (iv) Aircraft; including the applicant's knowledge and performance of the following tasks-
 - (A) Familiarisation with controls during outside checks
 - (B) Use of checklist, setting of radios and navigation aids, starting engines
 - (C) Taxiing
 - (D) Take-off
 - (E) Engine failure during take-off short after V₂, after reaching climb out attitude (Aeroplane)
 - (F) Engine failure during take-off short after TDP or DPATO after reaching climb out attitude (Helicopter)
 - (G) Other emergency procedures (if necessary)
 - (H) Instrument approaches to required minimum decision height, manual one engine out during approach and landing or go-around
 - (I) One engine simulated inoperative go-around from required minimum decision height
 - (J) One engine (critical) simulated inoperative landing

IS 2.3.3.11 EXAMINERS

- (a) The ground training for examiners shall at least include:
 - (1) Examiner duties, functions and responsibilities
 - (2) Applicable regulations and procedures;
 - (3) Appropriate methods, procedures and techniques for conducting the required tests and checks;

- of:
 - (4) Proper evaluation of student performance including the detection
 - (i) Improper and insufficient training, and
 - (ii) Personal characteristics of an applicant that could adversely affect safety;
 - (5) Appropriate corrective action in the case of unsatisfactory tests and checks; and
 - (6) Approved methods, procedures and limitations for performing the required normal, abnormal and emergency procedures in the aircraft.
- (c) The flight training shall include:
 - (1) Training and practice in conducting flight evaluation (from the left and right pilot seats for pilot examiners) in the required normal, abnormal and emergency procedures to ensure competence to conduct the flight tests and checks;
 - (2) The potential results of improper, untimely or non-execution of safety measures during an evaluation; and
 - (3) The safety measures (to be taken from either pilot seat for pilot check examiners) for emergency situations that are likely to develop during an evaluation.
- (d) The flight training for examiners (simulator) shall include:
 - (1) Training and practice in conducting flight checks in the required normal, abnormal and emergency procedures to ensure competence to conduct the evaluations tests and checks required by this Part (this training and practice shall be accomplished in a flight simulator, a flight procedures trainer or flight training device.
 - (2) Training in the operation of flight simulators, flight procedures trainers, or flight training devices, or in all three, to ensure competence to conduct the evaluations required by this Part.

IS 2.4.3 TYPE RATING - FLIGHT ENGINEERS - FLIGHT INSTRUCTION, SKILL TEST AND PROFICIENCY CHECK

- (a) The flight instruction, skill test and proficiency check for the flight engineers licences and type rating shall include CRM and at least the following areas of operation:
- (1) Pre-flight preparation; including the applicant's knowledge and performance of the following tasks-
 - (i) Equipment examination-systems knowledge
 - (ii) Aircraft handbooks, manuals, minimum equipment list (MEL), configuration deviation list (CDL) and operations specifications
 - (iii) Performance and limitations
 - (2) Pre-flight procedures; including the applicant's knowledge and performance of the following tasks-
 - (i) Pre-flight inspection and cockpit setup
 - (ii) Pre-flight inspection-exterior
 - (3) Ground operations; including the applicant's knowledge and performance of the following tasks-
 - (i) Powerplant start
 - (ii) Taxi and pre-take-off checks
 - (4) Normal procedures; including the applicant's knowledge and performance of the following tasks-
 - (i) Take-off
 - (ii) In-flight
 - (iii) During approach and landing
 - (iv) Engine systems monitoring

- (5) Abnormal and emergency procedures; including the applicant's knowledge and performance of the following tasks-
 - (i) Take-off
 - (ii) In-flight
 - (iii) During approach and landing
 - (iv) Engine systems monitoring
- (6) Post flight procedures
 - (i) After landing
 - (ii) Parking and securing

IS: 2.6.1.4 TYPE/TASK TRAINING

- (a) The Aircraft Maintenance Engineer Licences may be issued without any aircraft type endorsements. To qualify for an aircraft type endorsement on the aircraft maintenance engineer licences in category B1 or B2 or C, the applicant is required to attend an approved aircraft type training course for the particular aircraft type including sufficient practical maintenance experience and demonstrate by examination sufficient knowledge of the aircraft type. No aircraft type endorsement is required in the case of category A.
- The aircraft type examination may be conducted by the Authority or an appropriately approved maintenance organisation or an organization accepted by the Authority to conduct such examination.
- Aircraft type endorsement of the aircraft maintenance engineer licences is carried out by the Authority.
- (b) To qualify for the Approved Maintenance Organisation (AMO) certification authorisation in category B1 or B2 or C, the applicant is normally required to hold an appropriate aircraft type rated aircraft maintenance engineer licences and demonstrate sufficient knowledge of relevant approved maintenance organization procedures. Demonstrated knowledge of procedures must be to the satisfaction of the approved maintenance organisation's quality department. The certification authorization in category B1 or B2 or C is issued by the approved maintenance organization.

- (c) To qualify for the certification authorization in category A, the applicant is normally required to hold an aircraft maintenance engineer licences in category A and receive specific task training in the tasks for which the applicant will be granted a certification authorization. The applicant must also demonstrate sufficient knowledge of relevant approved maintenance organization procedures.

The task training and the associated practical assessment may be conducted either by the approved maintenance organisation or an appropriately approved maintenance training organization. Demonstrated knowledge of procedures must be to the satisfaction of the approved maintenance organisation's quality department.

The certification authorization in category A is issued by the approved maintenance organization.

IS 2.6.6 Aircraft Maintenance Engineer Licences Skill Test

Each applicant for an Aircraft Maintenance Engineer's licences or rating shall pass all tests including an oral/ practical test appropriate to the rating(s) sought. The tests cover the applicants skill in performing the practical projects on the subjects covered by the written test for that rating. The applicant will be provided with appropriate facilities, tools, materials and airworthiness data

- (a) The skill test for the AME Licences shall test the applicant's knowledge and performance in at least the following areas of operation:
- (1) basic electricity
 - (2) lines and fittings
 - (3) materials and processes
 - (4) ground operations and servicing
 - (5) cleaning and corrosion control

- (6) mathematics
- (7) maintenance forms and records
- (8) maintenance publications
- (9) physics
- (10) mechanic privileges and limitations
- (11) Human Factors (see IS: 3.4.2.3)

IS 2.6.6 (A). SKILL REQUIREMENTS FOR THE AME AIRFRAME RATING

- (a) The skill test for the airframe rating shall test the applicant's knowledge and performance in at least the following areas of operation:
- (1) assembly and rigging
 - (2) airframe inspection
 - (3) aircraft landing gear systems
 - (4) hydraulic and pneumatic systems
 - (5) cabin atmosphere control systems
 - (6) aircraft instrument systems
 - (7) communication and navigation systems
 - (8) fuel systems
 - (9) aircraft electrical systems
 - (10) position and warning systems
 - (11) ice and rain control systems

- (12) fire protection systems
- (13) Job/task documentation and control practices.

IS 2.6.6(B). SKILL REQUIREMENTS FOR THE AME POWERPLANT RATING.

- (a) The skill test for the powerplant rating shall test the applicant's knowledge and performance in at least the following areas of operation:
 - (1) powerplant electrical systems
 - (2) lubrication systems
 - (3) ignition and starting systems
 - (4) fuel metering
 - (5) engine fuel systems
 - (6) induction and engine airflow systems
 - (7) engine cooling systems
 - (8) engine exhaust and reverser systems
 - (9) propellers
 - (10) auxiliary power units
 - (11) Job/task documentation and control practices.

IS 2.6.6(C) SKILL REQUIREMENTS FOR THE AME AVIONICS RATING.

- (a) The skill test for the avionics rating shall test the applicant's knowledge and performance in the basic workshop and maintenance practices in at least the following areas of operation:

- (1) Avionics – electrical
- (2) Avionics – instrument
- (3) Avionics – autoflight
- (4) Avionics – radio
- (5) Repair, maintenance and function testing of aircraft systems/ components – avionics
- (6) Job/task documentation and control practices.

IS 2.10.1.3 APPENDIX A – BASIC TRAINING IN AVIATION MEDICINE FOR AMES

- (a) Basic training in aviation medicine
- (c) Physics of atmosphere and space
- (d) Basic aeronautical knowledge
- (e) Aviation Physiology
- (f) Ophthalmology
- (g) Otorhinolaryngology
- (h) Cardiology and general medicine
- (i) Neurology
- (j) Psychiatry in aviation medicine
- (k) Psychology

- (l) Dentistry
- (m) Accidents, Escape and Survival
- (n) Legislation, rules and regulations
- (o) Air evacuation
- (p) Medicine and flying

IS 2.10.1.3 APPENDIX B – ADVANCED TRAINING IN AVIATION MEDICINE FOR AMES

- (a) Pilot working environment
- (b) Aerospace physiology
- (c) ophthalmology
- (d) Otorhinolaryngology
- (e) Cardiology and general medicine
- (f) Neurology/Psychiatry
- (g) Human factors in aviation
- (h) Tropical medicine
- (i) Hygiene
- (j) Space medicine

IS 2.10.1.4 APPLICATION FORM FOR MEDICAL CERTIFICATE

(Application form to be implemented here from Guide for Aviation Medical Examiners, Appendix B)

IS 2.10.1.8 MEDICAL CERTIFICATE

The following details shall appear on the medical certificate:

- (i) Name of State
- (ii) Licences No.
- (iii) Name of holder in full (in Roman alphabet also if script of national language is other than Roman);
- (iv) Date of birth
- (v) Address of holder
- (vi) Nationality of holder
- (vii) Signature of holder
- (viii) Medical certificate Class 1 or 2
- (ix) Issuing [AUTHORITY]
- (x) Validity
- (xi) Limitations
- (xii) Date of issue and signature of issuing officer

Initial medical examination		
Date:		
State:		
Date (YDM) of:	Last	Next
Extended Medical Examination		
Medical (general) examination		
Electrocardiogram		
Audiogram		

IS 2.11.1.4 SENIOR PARACHUTE RIGGER LICENCES SKILL TEST

(a) The skill test for the senior parachute rigger licences shall test the applicant’s knowledge and performance in at least the following areas of operation:

(1) Certification, including the applicants’ knowledge and performance of the following tasks-

- (i) Senior Parachute Rigger experience requirements.
- (ii) Senior Parachute Rigger test requirements.

(2) Privileges, limitations and operating rules, including the applicants’ knowledge and performance of the following tasks-

- (i) Senior Parachute Rigger privileges.
- (ii) Required facilities and equipment.
- (iii) Performance standards.

- (iv) Recordation.
- (v) Manufacturer’s packing instructions.
- (vi) Repair classifications.
- (vii) Alterations.
- (viii) Equipment requirements for intentional parachute jumping.
- (ix) TSO 23c requirements.

(3) Packing parachutes, including the applicants’ knowledge and performance of the following tasks-

- (i) Packing round parachute.
- (ii) Packing ram-air parachute.
- (iii) Packing piggy-back container parachute.

(4) Parachute operation and care, including the applicants’ knowledge and performance of the following tasks-

- (i) Parachute storage.
- (ii) Parachute drying and airing.
- (iii) Parachute assembly inspection.
- (iv) Cleaning parachute canopies.
- (v) Parachute harness adjustment.
- (vi) Pin-type static line requirements.
- (vii) Break cord static line requirements.
- (viii) Cleaning parachute harness/container.

(5) Parachute construction details, including the applicants' knowledge and performance of the following tasks-

- (i) Seam construction defects.
- (ii) Webbing joint construction.
- (iii) Parachute construction knots.
- (iv) Fabric construction.
- (v) French fell seam construction.
- (vi) Technical standard order TSO-C23c.
- (vii) Technical standard order TSO-C23d.
- (viii) Fastener tapes.
- (ix) Finger loop construction.
- (x) Radial seam construction.

(6) Parachute repair, including the applicants' knowledge and performance of the following tasks-

- (i) Single canopy repair.
- (ii) Replacement of lower control line (ram-air canopy).
- (iii) Application of non-destructive test method TS-108.
- (iv) Line attachment loop replacement.
- (v) Removal and installation of grommets.
- (vi) Sewing machine operation.

- (vii) Cascade line replacement.
- (viii) Nicopress sleeve installation.
- (ix) Replacement of V-tab (butterfly tab).
- (x) Replacement of continuous suspension line.
- (xi) Suspension line replacement in ram-air canopy.
- (xii) Container patching.
- (xiii) Ram-air canopy repair limitations.
- (xiv) Ram-air canopy repair adjacent to a seam.

IS 2.11.1.5 MASTER PARACHUTE RIGGER LICENCES SKILL TEST

- (a) The skill test for the master parachute rigger licences shall test the applicant's knowledge and performance in at least the following areas of operation:
 - (1) Certification, including the applicants' knowledge and performance of the following tasks-
 - (i) Master Parachute Rigger experience requirements.
 - (ii) Master Parachute Rigger test requirements.
 - (2) Privileges, limitations and operating rules, including the applicants' knowledge and performance of the following tasks-
 - (i) Master Parachute Rigger privileges.
 - (ii) Required facilities and equipment.
 - (iii) Performance standards.
 - (iv) Recordation.

- (v) Manufacturer's packing instructions.
 - (vi) Repair classifications.
 - (vii) Alterations.
 - (viii) Equipment requirements for intentional parachute jumping.
 - (ix) TSO 23c requirements.
- (3) Packing parachutes, including the applicants' knowledge and performance of the following tasks-
- (i) Packing round parachute.
 - (ii) Packing ram-air parachute.
 - (iii) Packing piggy-back container parachute.
- (4) Parachute operation and care, including the applicants' knowledge and performance of the following tasks-
- (i) Parachute storage.
 - (ii) Parachute drying and airing.
 - (iii) Parachute assembly inspection.
 - (iv) Cleaning parachute canopies.
 - (v) Parachute harness adjustment.
 - (vi) Pin-type static line requirements.
 - (vii) Break cord static line requirements.
 - (viii) Cleaning parachute harness/container.

- (5) Parachute construction details, including the applicants' knowledge and performance of the following tasks-
- (i) Seam construction defects.
 - (ii) Webbing joint construction.
 - (iii) Parachute construction knots.
 - (iv) Fabric construction.
 - (v) French fell seam construction.
 - (vi) Technical standard order TSO-C23c.
 - (vii) Technical standard order TSO-C23d.
 - (viii) Fastener tapes.
 - (ix) Finger loop construction.
 - (x) Radial seam construction.
- (6) Parachute repair, including the applicants' knowledge and performance of the following tasks-
- (i) Single canopy repair.
 - (ii) Replacement of lower control line (ram-air canopy).
 - (iii) Application of non-destructive test method TS-108.
 - (iv) Line attachment loop replacement.
 - (v) Removal and installation of grommets.
 - (vi) Sewing machine operation.

- (vii) Cascade line replacement.
 - (viii) Nicopress sleeve installation.
 - (ix) Replacement of V-tab (butterfly tab).
 - (x) Replacement of continuous suspension line.
 - (xi) Suspension line replacement in ram-air canopy.
 - (xii) Container patching.
 - (xiii) Ram-air canopy repair limitations.
 - (xiv) Ram-air canopy repair adjacent to a seam.
- (7) Parachute Alterations, including the applicants' knowledge and performance of the following tasks-
- (i) Alteration data approval.
 - (ii) Install an automatic activation device.
 - (iii) Fabrication binding corners.
 - (iv) Altering riser connections.
 - (v) Bridle cord alteration.
 - (vi) Threading friction adapter.
 - (vii) D- or V-ring alteration.
 - (viii) Conversion of ripcord deployment to hand deployed pilot chute.
 - (ix) Fabricate a canopy deployment bag.
 - (x) Convert throw-out pilot chute from rear of leg position to the bottom of container position.

IS 2.11.1.6 TYPE RATINGS—PARACHUTE RIGGER LICENCES SKILL TEST

- (a) The skill test for ratings or added ratings to a parachute rigger licences shall test the applicant's knowledge and performance in at least the following areas of operation applicable to the rating sought, including the applicant's knowledge and performance of the following:
- (1) Additional rating requirements.
 - (2) Packing seat-type parachute.
 - (3) Packing back-type parachute (excluding piggy-back).
 - (4) Packing chest-type parachute.
 - (5) Packing lap-type parachute.

MADE this 14th day of *March, 2016*.

Leonard Balogun Koroma,
Minister of Transport and Aviation.

FREETOWN,
SIERRA LEONE