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Civil Aviation Authority Of Bangladesh

Civil Aviation Procedure Document

On

Aircrew Medical

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Issue-2

CAAB HQ, Kurmitola, Dhaka-1229

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FOREWORD

Civil Aviation Procedure Document on Aircrew Medical, Issue-2 is prepared as per Civil Aviation Rules of Bangladesh and is formulated to comply with the Annex 1 to the Convention on International Civil Aviation, Personnel licensing.

Civil Aviation Procedure Document on Aircrew Medical, Issue-2 is hereby approved and is issued with immediate effect for compliance.

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Director
Flight Safety & Regulations
Civil Aviation Authority Of Bangladesh

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RECORD OF AMENDMENTS

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APPLICABILITY

Civil Aviation Procedure Document on Aircrew Medical, Issue-2 specifies the Policies and Procedures of Medical Examination and Assessment and Medical Standards for Licencing Requirements of Flight Crews, Air Traffic Controllers and other Aircrews, and outlines guidelines for reviewing medical fitness in different medical conditions.

Civil Aviation Procedure Document on Aircrew Medical, Issue-2 will also be applicable to foreign flight crews working in Bangladesh.

DEFINITIONS

In the Medical Procedures following terms have the meanings as defined below:

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.

Medical Assessor. A physician qualified and experienced in the practice of aviation medicine who evaluates medical reports submitted to the Licensing Authority by aviation medical examiners.

Aviation Medical Examiner. A physician with training in aviation medicine and practical knowledge and experience of the aviation environment, who is appointed or designated by the Licensing Authority to conduct medical examinations of fitness of applicants for licences or ratings for which medical requirements are prescribed.

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.

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.

Balloon: A non-power driven, lighter-than-air aircraft.

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.

Crew member. A person assigned by an operator to duty on an aircraft during flight time.

Decrease in Medical Fitness: It is a state or period when there is diminished medical fitness that may be attributable to illness, injuries, drugs or physical, physiological or mental stresses or finding outside the prescribed normal ranges, which lasts usually for certain period of time and is of temporary nature.

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during flight time.

Flight duty period. The total time from the moment a flight crew member commences duty, immediately subsequent to a rest period and prior to making a flight or a series of flights, to the moment he is relieved of all duties having completed such flight or series of flights.

Flight Time: The total time from the moment an aircraft first moves for the purpose of taking off until the moment it comes to rest at the end of flight.

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.

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.

General aviation. All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire.

Glider: A non-power driven, heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reaction on surfaces which remain fixed under given conditions of flight.

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.

Human Performance: Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Licensing Authority. The Chairman, Civil Aviation Authority of Bangladesh is responsible for the licensing of personnel.

Likely. In the context of the medical provisions, **likely** means with a probability of occurring that is unacceptable to the Medical Assessor.

Medical Assessment. The evidence issued by a Contracting State that the licence holder meets specific requirements of medical fitness.

Medical Condition: Medical finding**,** physical or numerical, outside the normal range or standards of medical requirements.

Medical Flight Test: Actual flight test done to help assess the applicant's ability to perform under normal as well as adverse flight conditions if there is suspicion or overt manifestation of decreased physical ability or functional limitation.

Pilot-in-command. The pilot responsible for the operation and safety of the aircraft during flight time.

Psychoactive Substances: Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

Problematic use of substances: The use of one or more psychoactive substances by aviation personnel in a way that:

a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or
b) causes or worsens an occupational, social, mental or physical problem or disorder.

Rated air traffic controller. An air traffic controller holding a licence and valid ratings appropriate to the privileges exercised by him.

Rating. An authorization entered on or associated with a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.

Rest period. Any period of time on the ground during which a flight crew member is relieved of all duties by the operator.

Safety-sensitive personnel. Persons who might endanger aviation safety if they perform their duties and functions improperly. This definition includes, but is not limited to, flight crew, cabin crew, aircraft maintenance personnel and air traffic controllers.

Significant. In the context of the medical provisions in Chapter 6, Annex 1, **significant** means to a degree or of a nature that is likely to jeopardize flight safety.

ABBREVIATIONS

MA : Medical Assessor

AME **:** Aviation Medical Examiner

ATC **:** Air Traffic Controller

ATPL **:** Airline Transport Pilot Licence

CAAB: Civil Aviation Authority, Bangladesh

CAR **:** Civil Aviation Regulations

CPL **:** Commercial Pilot Licence

ICAO **:** International Civil Aviation Organization

PPL **:** Private Pilot Licence

PREFACE

One of the functions of Civil Aviation Authority of Bangladesh is to issue 'licence' to Flight Crew, Air Traffic Controllers and Aircraft Maintenance Engineer. Besides knowledge and skill, the applicant must possess proper health condition - physical and mental, and functioning special senses to perform the task. Hence 'Medical Examination and Assessment' of the applicant forms an integral component and a regulatory requirement, before the licence is issued, whether it be an initial or a renewal. He also should be free of condition or disease that may cause incapacitation jeopardizing the safety of flight while performing his duties.

Civil Aviation Procedure Document on Aircrew Medical, Issue-2 has been prepared as per the guideline of ICAO Annex-1, Doc 8984 and Doc 9379. At the same time, necessary conformity with ailment prevalence in Bangladesh has been taken into consideration and accordingly implemented. It has been essentially prepared for the Medical Assessor and the Aviation Medical Examiners, to provide guidelines for medical information/standards, Policies and Procedure in order to provide license requirements of Flight Crew and Air Traffic Controllers and assess their fitness in the presence/absence of medical condition.

Civil Aviation Procedure Document on Aircrew Medical, Issue-2 consists of 3 parts:

Part 1 : Policies and Procedures for Medical Examination and Assessment
Part 2 : Medical Standards of Licencing Requirements
Part 3 : Guidelines on Medical Conditions.

They are in conformity with ICAO Standards and Recommended Practices, Annex 1 to the Convention on International Civil Aviation and are duly adopted by Civil Aviation Authority, Bangladesh. In the preparation of this Requirements, Manual of Civil Aviation Medicine ICAO, Doc 8984-AN/895 is also referred.

As knowledge and techniques are advancing rapidly and more and more experience is achieved, both in medicine and aviation, these medical requirements will be amended by the Chairman, Civil Aviation Authority of Bangladesh as and when appropriate.

PART 1 POLICIES AND PROCEDURES FOR MEDICAL EXAMINATION AND ASSESSMENT

1.1 REQUIREMENT OF MEDICAL ASSESSMENT

Flight Crew Members, Air Traffic Controllers, Aircraft Maintenance Personnel and Flight Operations Officers shall not exercise the privileges of their license/certificate unless they hold a current Medical Assessment appropriate to the license held as prescribed by the Civil Aviation Authority of Bangladesh.

1.1.1 MEDICAL PROVISIONS - GENERAL

1.1.1.1 Guidance material published in the ICAO Annex 1 and ICAO Manual of Civil Aviation Medicine (doc 8984) shall be followed.

1.1.1.2 Applicants shall meet the prescribed licensing requirements of medical fitness for the issue of various types of licences/certificates as mentioned in this Medical Procedures of the Civil Aviation Authority of Bangladesh.

1.1.1.3 The Civil Aviation Authority, Bangladesh shall issue the licence holder with the appropriate medical assessment, Class 1, Class 2 or Class 3 or as prescribed for certain licences and certificates.

1.1.1.4 The medical assessment shall be issued in the prescribed format.

1.1.1.5 The applicant for the medical assessment shall report to the office of the Medical Assessor of the Civil Aviation Authority, Bangladesh (CAAB) for medical assessment. The applicant can choose his medical examiner from the list of the Aviation Medical examiners. The Medical Assessor of the CAAB can also act as an aviation medical examiner if desired by the applicant. The venue of the aviation medical examination shall be either CAAB Headquarters or personal medical professional practice site of the medical examiner. The venue of the aviation medical examination shall be fixed as per desire of the applicant for the aviation medical examination. For the convenience of the applicant the Medical Assessor of the CAAB shall be available in the CAAB Headquarters during working hours. The Medical Assessor of the CAAB shall not be absent from the office without permission from the Director of Flight Safety and Regulations of CAAB.

1.1.1.6 The medical assessment shall be an integral part of the license/certificate (not necessarily endorsed on the license / certificate itself).

1.1.1.7 The Medical Assessor, the Aviation Medical Examiners and the Aviation Paramedics of CAAB shall be issued credentials for complete and uninterrupted access to an air operator's personnel, aircraft, operations, facilities, and associated records for the purpose of certification and continued surveillance, and resolution of safety issues.

1.1.2 MEDICAL ASSESSMENT PROCESS

1.1.2.1 An applicant for a medical assessment must furnish adequate proof of his or her identity as a prerequisite for an assessment. The documentation required to verify identity will be Identity Card (Company Identity Card/National Identity Card/Smart National Identity Card) of the applicant. In case of a renewal, the current licence and last issued medical assessment should be reviewed by the medical examiner at each examination.

1.1.2.2 The actual assessment commences with the identified applicant providing the medical examiner with a personally certified statement of medical facts concerning personal, familial and hereditary history. A reliable assessment requires that statement to be complete and accurate and the applicant should be advised that any false or misleading information in the statement could have far-reaching consequences. The statement of medical facts is included in the application form for a medical assessment.

1.1.2.3 The licence holders must be encourage to remain healthy and to avoid preventable disease or injuries by taking care of themselves and making appropriate lifestyle choices.

1.1.2.4 After reviewing the medical history and completing the examination, the medical examiner will either:

a) issue a fit medical assessment if the applicant is found fit in all respects;

b) deny the application if the applicant is found unfit; or

c) defer the action to the Licensing Authority if the applicant does not meet all the medical criteria to be assessed as fit but his or her condition is not considered by the medical examiner to be detrimental to flight safety.

1.1.2.5 Whatever the outcome, a medical report shall be produced and be sent to the CAAB by the AME for the evaluation by the medical assessor and for recording and auditing purposes. The reports are required to be evaluated by a medical assessor.

1.1.2.6 If an application for a medical assessment is denied, the applicant may:

a) accept the decision; or

b) appeal the decision.

1.1.2.7 An appeal request should be addressed to the Chairman of the CAAB within the period of 60 days, with suitable supporting data. The Chairman of the CAAB will convene a Civil Aviation Medical Board (consisting of relevant specialists) to provide expert advice. The responsibility for the final aeromedical decision rests with the Medical Assessor of the CAAB, who should have autonomy in making this decision.

1.1.2.8 An applicant who does not meet all the medical criteria to be assessed as fit but whose condition is not considered by the Medical Assessor to be detrimental to flight safety may still be issued with a medical assessment after due consideration by the Medical Assessor. The first step includes a thorough examination by a specialist including relevant investigations and an evaluation of whether or not the condition is progressive, to what extent function is impaired, and whether there is any risk of further deterioration or incapacitation.

1.1.2.9 In the case of relatively static physical conditions (e.g. poor function or absence of a limb, or deficiency of visual acuity or hearing), if the medical examiner considers that the applicant's condition is not necessarily detrimental to flight safety, the medical examiner may recommend additional testing to assess the applicant's performance during a carefully-designed flight test with a flight examiner designated for that kind of specific flight test, in order to verify that the applicant is capable of safely performing duties under normal, non-normal and adverse conditions expected to be encountered in operations.

1.1.2.10 Finally, the Licensing Authority may, for medical reasons justified and notified to the applicant, limit or deny a medical assessment. Also if it is established that an

applicant or an assessment holder has not met, or no longer meets the medical requirements, the Authority can suspend or revoke a medical certificate that has been issued.

1.2 MEDICAL FORMS

Medical Forms for the aviation medical examination and assessment of flight crew and air traffic controllers and others are shown as attachments at the end of this document. The Medical Forms shall be available in the CAAB. The names of the forms are as follows:

A. Application form for an aviation medical certificate (Attachment 1)
B. Medical examination report (Attachment 2)
C. Medical certificate (Attachment 3)

1.3 MEDICAL HISTORY AND DECLARATION OF TRUTH

The applicant shall furnish personal information and information of illness, injury, disability or history pertaining to his medical fitness in the past as asked in the Application Form for an aviation medical certificate and submit it to the Aviation Medical Examiner at the time of medical examination. He is required to sign in an appropriate place in the Application Form. An applicant must not give any false declaration to the medical examiner. In case of a false declaration by an applicant to a medical examiner the following actions shall be applied by the CAAB. At the first instance a written warning shall be offered. Repetition of the false declaration shall result in suspension of the license. All these actions shall be documented. The copies of the actions offered shall be preserved in the Personal Folder of the applicant in the Flight Safety and Regulations Division and in the Medical Folder of the applicant in the Medical Section. One copy of the actions offered shall be e-mailed to the employer of the applicant for their information and necessary actions.

1.4 MEDICAL EXAMINATION

The medical examination is done in three parts, as under:

1. Physical and Mental Examination,
2. Ear, Nose & Throat Examination and Hearing, and
3. Eye Examination, Visual Acuity & Colour Perception

1.4.1 Physical and mental requirements

An applicant for any class of medical assessment shall be required to be free from:

- any abnormality, congenital or acquired; or
- any active, latent, acute or chronic disability; or
- any wound, injury or sequelae from operation; or
- any effect or side-effect of any prescribed or non-prescribed therapeutic, diagnostic or preventive 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.

Note: Use of herbal medication and alternative treatment modalities requires particular attention to possible side-effects.

1.4.2 Visual acuity requirements

The following should be adopted for tests of visual acuity:

- Visual acuity tests should be conducted in an environment with a level of illumination that corresponds to ordinary office illumination (30-60 cd/m2).
- Visual acuity should 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.

1.4.3 Colour perception requirements

CAAB shall use methods of examination as will guarantee reliable testing of colour perception.

1.4.3.1 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.

1.4.3.2 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 on Illumination (CIE).

1.4.3.3 An applicant obtaining a satisfactory result as prescribed by the licensing 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.

1.4.3.4 Sunglasses worn during the exercise of the privileges of the licence or rating held should be non-polarizing and of a neutral grey tint.

1.4.4 Hearing requirements

CAAB shall use methods of examination as will guarantee reliable testing of hearing.

1.4.4.1 Applicants shall be required to demonstrate a hearing performance sufficient for the safe exercise of their licence and rating privileges.

1.4.4.2 Applicants for Class 1 medical assessments shall be tested by pure-tone audiometry at first issue of the assessment, not less than once every five years up to the age of 40 years, and thereafter not less than once every two years. Alternatively, other methods providing equivalent results may be used.

1.4.4.3 Applicants for Class 3 medical assessments shall be tested by pure-tone audiometry at first issue of the assessment, not less than once every four years up to the age of 40 years, and thereafter not less than once every two years. Alternatively, other methods providing equivalent results may be used.

1.4.4.4 Applicants for Class 2 medical assessments should be tested by pure-tone eudiometry at first issue of the assessment and, after the age of 50 years, not less than once every two years.

1.4.4.5 At medical examinations, other than those mentioned above, where audiometry is not performed, applicants shall be tested in a quiet room by whispered and spoken voice tests.

1.4.4.6 The reference zero for calibration of pure-tone audiometers is that of the pertinent standards of the current edition of the audiometric test methods, published by the International Organization for Standardization (ISO).

1.4.4.7 For the purpose of testing hearing in accordance with the requirements, a quiet room is a room in which the intensity of the background noise is less than 35 db(a).

1.4.4.8 Private pilot licence holders requiring an instrument rating shall qualify for hearing acuity of Class 1 standard.

1.4.5 Investigations Requirements

For initial issue of licence Urine test (routine and microscopic), Blood test (Hb, ESR and Blood sugar), Chest X-ray PA view, Electrocardiogram and Audiogram are required, and then after Electrocardiogram, Audiogram and Chest X-ray are required periodically. These test requirements vary depending on Medical Assessment Class. Additional tests will be required after the fortieth birthday viz. Blood sugar, Lipid profile, Urine Routine and Microscopic examination, Echocardiogram and Exercise ECG and repeated periodically then after every five years in case of Class I Medical Assessment. In specific cases further examinations and tests may be required.

1.5 MEDICAL ASSESSMENT

In the Medical Assessment Form AME will record his opinion as to the medical fitness of the applicant and sign and the applicant also sign in appropriate space. If there is finding outside the standards or any deficit or defect, numerically or otherwise and that is unlikely to interfere with the safe exercise of the applicant's licence, the AME may assess him as medically fit and recommend certain limitation or endorsement if deemed necessary for the sake of flight safety. The applicant who has passed the medical assessment is considered physically and mentally fit for performing his duties and also that he will remain so for the period of validity of his license.

1.6 MEDICAL CONFIDENTIALITY

Medical confidentiality shall be respected at all times. All members of the Medical Assessor Office shall be aware of the importance of maintaining confidentiality of medical information. All medical records shall be stored in the Medical Assessor Office of the CAAB and be inaccessible to any person outside the Medical Assessor Office staff of the CAAB. However, limited medically related information may need to be released to operational staff in order to enable an operational assessment to be made. The medical assessor shall determine to what extent pertinent medical information is presented to relevant officials of the CAAB when justified by operational considerations. A confidentiality agreement is usually inserted at the foot of the medical declaration that is signed by the applicant during routine medical examinations, to cover such situations.

1.7 MEDICAL FITNESS

The applicant should satisfy the AME that he/she is medically fit to exercise the privilege of the license as per the medical standards for licensing. If there is any doubt in his/her medical fitness, further examinations or tests or opinion from the experts will be required

1.8 DECREASE IN MEDICAL FITNESS AND LICENCE HOLDER RESPONSIBILITIES

Holders of licences 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. Decrease in medical fitness can usually be assumed to be present in the following situations:

1. After severe illness, injuries, accident, operation, invasive procedures or hospitalization,
2. Incapacitation for more than 21 days,
3. Problematic use of substances including alcohol or illicit drugs,
4. Being pregnant

Licence holders shall understand the medical considerations that is relevant to flight safety. As some conditions, or treatments, or prescribed or non-prescribed medications may have significantly greater consequences in an aviation environment than in ordinary circumstances, common sense cannot be relied upon. Therefore, if a licence holder has any concerns that his or her condition could potentially affect flight safety, he or she should consult, or seek clarification from an aviation medical examiner of the CAAB before exercising licence privileges. Such matters can be discussed and investigated at routine medical examinations but the individual licence holder bears responsibility ensuring that he is fully fit when exercising licence privileges, should a medical condition first become known in between medical examinations (which is the usual case). A person who holds a current medical assessment must not exercise licence privileges if he or she is aware of, or has reasonable grounds to suspect, any change in his or her medical condition or the existence of any previously undetected medical condition that may interfere with the safe exercise of the privileges to which his or her medical assessment relates. This obligation applies if there is a decrease in medical fitness attributable to the effects of intercurrent disease, injury, alcohol or other psychoactive substances, medication or fatigue, which might render the holder of a licence or rating incapable of meeting the medical requirements of his licence or rating. Licence holders must not exercise the privileges of their licences and ratings while under the

influence of any psychoactive substance which might render them unable to safely and properly exercise these privileges. Similarly, non-licensed crew and other persons whose output is safety-sensitive should not operate while under the influence of any psychoactive substance which might render them unable to safely perform their functions and duties. Aviation organizations should have procedures in place to minimize the likelihood of such an occurrence. While pregnancy is a natural event, it can result in physiological changes

or medical complications that have the potential to affect aviation safety. Accordingly, pregnancy, including its consequences, is considered a medical condition and a licence holder who becomes pregnant must inform the Medical Assossor Office of the CAAB immediately for assessment fitness for flying. Normally, a licence holder with a low-risk uncomplicated pregnancy, after obstetrical evaluation and under continued medical supervision, may be assessed as fit between the end of the 12th week until the end of the 26th week of gestation. The AME shall discuss this Medical Procedure requirement with all the applicant for the Aviation Medical Examination.

1.9 BORDERLINE MEDICAL FINDING

In case of finding which is outside the prescribed normal range or undesirable or indicative of early sign of disease process, but not necessarily likely to cause incapacitation or jeopardize the flight safety, the Medical Examiner will inform the applicant or licence holder and may ask further tests /or opinion from experts or advise him to see his airline doctor or his doctor to take timely precautions.

1.10 ACCREDITED MEDICAL OPINION/CONCLUSION

If the applicant for or the holder of a license does not meet the requirement or is found to have any condition due to illness, injury or operation or sequelae there from which causes or may cause incapacitation interfering with the performance of duties, further evaluation from the specialist and additional tests may be required. Such cases shall be referred to specialists or experts for their opinion by the Medical Assessor of the CAAB. Opinion made from such special medical evaluation is called 'Accredited Medical Opinion/Conclusion'. If accredited medical opinion certifies him/her medically fit, it indicates that applicant's or holder's failure to meet any requirement, is such that exercise of the privileges of the licence is not likely to

jeopardize the flight safety. The relevant ability, skill and experience of the applicant and operational conditions are given due consideration in such evaluation. The licence is endorsed by the Medical Assessor with limitation or restrictions if necessary, for the sake of flight safety.

In summary, if the medical standards prescribed for a particular licence are not met, the medical assessment must not be issued or renewed unless all of the following conditions are fulfilled:

a) an 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 licence applied for is not likely to jeopardize flight safety;

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

c) the licence is endorsed with any special limitation or limitations when the safe performance of the licence holder's duties is dependent on compliance with such limitation or limitations.

1.11 MEDICAL FLIGHT TEST

In some case or where there is suspicion of overt manifestation of decreased physical ability or functional limitation, he may be tested in actual flight to see if he can operate the aircraft without compromising the flight safety during routine and emergencies. This will be done under the supervision of an instructor pilot and the Medical Assessor. The medical flight test can also be combined with pilot proficiency check.

1.12 FLEXIBILITY CLAUSE

If the applicant has deficit or defect, numerical or otherwise, that may cause a degree of functional incapacity, the Medical Assessor of the CAAB can recommend for renewal of license, with the evidence that the applicant has already acquired and demonstrated ability, skill and experience which could compensate for the failure to meet the prescribed medical

standard. Besides it is believed not to produce any hazard either of incapacity or of inability to perform his duty safely. However this provision may be applied with endorsements e.g. operational limitation or restriction, assistance like glasses, additional tests in medical examination, frequent medical examination, etc. It will be done usually on 'accredited medical opinion'. This is popularly called as 'waiver' and assessed as 'fit' under 'flexibility clause' only after careful consideration of all aspects of the individual case.

1.13 MEDICALLY UNFIT OR DEFERRED MEDICAL ASSESSMENT

If the applicant for the licence, whether it be initial or renewal, does not clearly meet the medical requirements or is found to have any condition due to illness, injury or operation or sequelae there from or influence of psycho-active substances or problematic use of substances or drugs, which causes or may cause incapacitation interfering with the performance of duties safely, he will not pass the medical assessment. He will be certified medically unfit. However, in case of doubt, medical assessment is deferred until further evaluation is done and then after only final certification is made whether medically fit or unfit.

1.14 SUSPENSION OF LICENCE ON MEDICAL REASON

In case of licence holder on receiving notice in writing or through reliable source that he does not meet the medical requirement or is found to have any condition due to illness, injury or operation or sequelae there from or influence of psycho-active substances or problematic use of substances or drugs, which causes or may cause incapacitation interfering with the safe performance of duties, his licence may be suspended, until full medical examination and assessment is done later at pre-specified time or after he fully recovers. At that time, he must submit complete medical report with diagnosis, treatment and progress from the treating doctor. If it is going to take long time, they must submit the medical report periodically, usually not later than six months, so as to maintain their record and continuity.

1.15 PROVISION OF APPEAL

If the licence is denied or suspended or deferred on medical ground and the applicant for or holder of license is not satisfied, he has the right of appeal to the Chairman of the CAAB

within the period of 60 days. The Chairman of the CAAB will convene a Civil Aviation Medical Board to perform re-examination of the applicant. The responsibility for the final aeromedical decision rests with the Civil Aviation Medical Board. The Civil Aviation Medical Board has autonomy in making decision. The decision of the Civil Aviation Medical Board shall be the final.

1.16 EXPIRED LICENCE DUE TO MEDICAL REASON

The flight crew or air traffic controller whose licence has expired due to medical reason will have to undergo medical examination and assessment and be assessed medically fit for the reissue of the licence. During the medical examination he should submit full medical report of the treating physician with all the investigations and treatment and report that he has fully recovered from the medical condition.

1.17 VALIDATION OF FOREIGN LICENCE

Validation of foreign licences shall be done by the Flight Inspection Section of CAAB if the licence holder can provide the evidence that he has complied with equivalent requirements including medical assessment in the State of the issue of the licence.

Nevertheless medical examination and assessment shall be required to all the foreign licence holder to ascertain his medical fitness and to comply with medical requirements of CAAB. The licence holder shall not refuse to undergo such examination

1.18 DISPENSATION OF MEDICAL EXAMINATION AND ASSESSMENT

If the license holder is in such a region where aviation medical examination by CAAB is not possible, CAAB can extend the validity period to a period of 3 months in case of CPL, ATPL and Flight Engineer and other flight crew for commercial purpose and 6 months in case of PPL. This will be considered in exceptional circumstances for one time only. But in such case he should forward to CAAB a medical certificate from a local registered aviation medicine practitioner declaring his medical fitness in accordance with the Medical Requirements of the CAAB.

1.19 EXCEEDING CUMULATIVE FLIGHT HOURS LIMITATION

The privilege of the licence will automatically cease the moment the crew crosses the cumulative flight hours limitation. However on special circumstances it may be

waived only if the there is a written application and CAAB is convinced and medical examination by Medical Assessor is satisfied and certifies him medically fit. He will specifically ensures that there is no symptoms and signs of fatigue. This will be in exceptional situation and for the shortest possible period only.

1.20 CONSULTATION FEE

The consultation fees and expenditure for medical examination and tests and evaluation by specialist or experts (accredited medical opinion), medical flight tests and second opinion after appeal, will be borne by the applicant. The applicant must pay consultation fee in cash to the examiner of taka one thousand only for Class 2 and Class 3 Medical Assessment, taka one thousand only for Class 1 Medical Assessment for CPL, taka one thousand only for Class 1 Medical Assessment for ATPL. The Aviation Medical Examiner will also receive the monthly honourium from the CAAB in addition the consultation fee from the applicant. If the medical examination is done by the Medical Assessor, the Medical Assessor will receive the consultation fee from the applicant. The applicant must bear all the expenses of the relevant investigations.

1.21 AVIATION MEDICINE SECTION OF CAAB

The Chairman of the CAAB employs/designates medical personnel (Aviation Medical Examiners, Medical Assessor and Aviation Paramedics) to conduct aviation medical examinations for the issuance of medical assessments and to run all the functions of Aviation Medicine in the CAAB. The CAAB issues credentials to the Medical Assessor, Medical Examiners and Aviation Paramedics for complete and uninterrupted access to an air operator’s personnel, aircraft, operations, facilities, and associated records for the purpose of certification and continued surveillance. Advertisement regarding the requirement of the medical personnel shall be done through the CAAB web site and through the national daily newspaper. CAAB selects medical personnel through a selection board. The CAAB will also utilize other physicians experienced in the practice of aviation medicine to assist the CAAB when necessary with the recommendation of the Medical Assessor of the CAAB.

1.22 AVIATION MEDICAL EXAMINER (AME)

An Aviation Medical Examiner (AME) is a physician with training and qualifications at least diploma in aviation medicine, practical knowledge and experience of the aviation environment, who is employed by the Civil Aviation Authority of Bangladesh to conduct medical examinations of fitness of applicants for licences or ratings for which medical requirements are prescribed. They shall perform the medical examination in accordance with the Medical Procedures of the Civil Aviation Authority of Bangladesh. They must be thorough in examination. They must remain aware of the responsibility towards flight safety. AME can have access to aviation medical examination related documents of the applicant or licence holders from CAAB during the medical examination. The Aviation Medical Examiners shall contact with Medical Assessor of CAAB for any clarification or guidance.

The tenure of AME will be one year to three years at a time. It can be extended, provided the AME has maintained professional competence including familiarity and interest in aviation medicine and provides satisfactory service. The tenure of AME will not be extended or even curtailed in the event of AME fails to demonstrate satisfactory performance. The AME shall perform at least five medical assessments in a year to remain as an AME in CAAB.

1.22.1 QUALIFICATIONS AND TRAINING IN AVIATION MEDICINE REQUIREMENTS FOR EMPLOYMENT AS AVIATION MEDICAL EXAMINER

For employment as AME in the CAAB the following qualifications, training and job experience in aviation medicine are prerequisite:

a) MBBS or Equivalent Medical Graduation Degree
b) Diploma in Aerospace/Aviation Medicine
c) Minimum five years of service experience as a specialist in Aerospace /Aviation Medicine
d) Must have adequate satisfactory experience of teaching of Aviation Medicine /Aerospace Medicine / Aviation Psychology in any recognized Pilot Training Academy, Flying Instructors School or Aero Medical Institute.

1.22.2 KNOWLEDGE REQUIRED FOR AN AVIATION MEDICAL EXAMINER

All aviation medical examiners will be involved in making flying fitness decisions concerning medical conditions. To do this the aviation medical examiner must build on a sound understanding of the regulatory framework, responsibilities and accountabilities, including the process of flexibility. The aviation medical examiner shall have working knowledge in aviation medicine. The following summary is suggested as a reasonable basis of knowledge required to function as an aviation medical examiner of CAAB. This knowledge shall be imparted to the aviation medical examiners during refresher training for the AME and the Aviation Paramedics.

Aviation physiology

- Cognition and aviation
- Decision making and communication in aviation
- Sleep and fatigue as related to commercial aviation
- Physics of the atmosphere; effects of altitude on trapped gas
- Effects of hypoxia
- Functional aspects of vision relevant to aviation
- Spatial disorientation
- Effects of acceleration

Clinical aviation medicine

- Aspects of incapacitation in flight
- Effects of ageing as related to flight safety
- Cardiological conditions relevant to flight
- Neurological conditions relevant to flight
- Ophthalmological conditions relevant to flight
- Ear/nose/throat conditions relevant to flight
- Respiratory conditions relevant to flight
- Psychiatric conditions relevant to flight
- Metabolic/endocrine conditions relevant to flight
- Other conditions relevant to flight (especially gastro-enterological, haematological, urological, renal, gynaecological/obstetric, orthopaedic and

oncological disease)

• Medication relevant to flight

Public Health

• Introduction to the World Health Organization International Health Regulations (2005)

• Knowledge of ICAO SARPs related to public health

Annex 6 — Operation of Aircraft: On board medical supplies

Annex 9 — Facilitation: Public Health Emergency preparedness planning, Aircraft General Declaration

Annex 11 — Air Traffic Services: Aspects relevant to public health emergencies in contingency planning

Annex 14 — Aerodromes: Aspects relevant to public health emergencies in aerodrome emergency planning

Procedures for Air Navigation Services — Air Traffic Management: Part III, Chapter 18, Appendix

Annex 18 — The Safe Transport of Dangerous Goods by Air: Carriage of medical items by air e.g. radioactive materials and biological specimens

Regulatory medicine

• Convention on International Civil Aviation and its Annexes

• ICAO Standards and Recommended Practices, with focus on medically related SARPs

• Licence types and differences in medical requirements between them

• ICAO Annex 1: difference between "Licence" and "Medical Assessment". Validity periods of Medical Assessments

• Application of "Flexibility Standard" 1.2.4.9 in ICAO Annex 1 and accredited medical conclusion

• Evaluation of evidence — critical appraisal of specialist reports and data

• Decrease in medical fitness — administrative process for an "unfit" decision

• Other medical regulations in the ICAO Annexes (psychoactive substances,

fatigue, oxygen)

- Principles of risk management
- Principles of safety management, as applied to aviation medicine

1.22.3 REFRESHER TRAINING FOR AVIATION MEDICAL EXAMINERS

The Medical Assessor of the CAAB shall arrange refresher training programme for all the medical examiners of the CAAB in every calendar year. The new medical-related provisions must be discussed during refresher training. The duration of the refresher training programme shall be at least one full working day. For the convenience of the medical examiners, the schedule of the refresher training programme shall be e-mailed to the participants at least one week before the refresher training. The documents showing the attendance of the participants and the subject matter discussed shall be preserved by the Medical Assessor of the CAAB.

1.22.4 AUTHORITY OF THE MEDICAL EXAMINERS OF THE CAAB

The medical examiners shall perform the medical examination in accordance with the Medical Procedures of the Civil Aviation Authority of Bangladesh and the medical Standards prescribed in the Chapter 6 of ICAO Annex 1. They are authorized to perform all the Classes of Medical Assessment (Class 1 Medical Assessment, Class 2 Medical Assessment and Class 3 Medical Assessment) when the Medical Standards prescribed in the Medical Procedures of the CAAB and in the Chapter 6 of ICAO Annex 1 for a particular licence type are met. If the Medical Standards prescribed in the Medical Procedures of the CAAB and in the Chapter 6 of ICAO Annex 1 for a particular licence type are not met the Medical Examiners shall refer the applicant to the Medical Assessor of the CAAB for medical assessment.

1.22.5 DOCUMENTS PROVIDED TO THE MEDICAL EXAMINERS

The Medical Assessor of the CAAB shall provide necessary Medical Documents /Forms/ Guidelines including new medical-related provisions in hard/soft copy to the Medical Examiners for their smooth functioning. The following are a list of Medical Documents / Forms/Guidelines which shall be available with the Medical Examiners.

1. Medical Procedures of CAAB
2. ICAO Annex 1
3. ICAO Doc 8984 Manual of Civil Aviation Medicine
4. Civil Aviation Rules of Bangladesh

5. Application Form for an Aviation Medical Certificate
6. Medical Examination Report Form
7. Medical Certificate Form.

1.22.6 SUPERVISION AND CONTROL OF THE MEDICAL EXAMINERS

The Medical Assessor of the CAAB shall supervise and control the Medical Examiners of the CAAB. The Medical Examiners shall meet with Medical Assessor once in every year for professional improvement during refresher training. The Medical Assessor shall make surprise check at least once in every year to the Medical Examiners to ensure the oversight system for the Medical Examiners of the CAAB for the demonstration of the use of the latest ICAO SARPs and other documents, timely transmittal of reports to medical department of the CAAB and evidence to confirm effective implementation. The Medical Assessor shall oversight the Medical Examiners with importance of the following:

1. Premises
2. Equipments
    a) Weighing Machine
    b) Height Measuring System
    c) Stethoscope
    d) Sphygmomanometer
    e) Near Vision Testing System
    f) Distant Vision Testing System
    g) Colour Vision Testing System
3. Medical Documents
    a) Medical Procedures of CAAB
    b) ICAO Annex 1
    c) ICAO Doc 8984 Manual of Civil Aviation Medicine
    d) Civil Aviation Rules of Bangladesh
    e) Application Form for an Aviation Medical Certificate
    f) Medical Examination Report Form
    g) Medical Certificate Form.
4. Personal Documents
    a) MBBS/Medical Graduation Certificate
    b) Diploma in Aviation/Aerospace Medicine Certificate
    c) Medical and Dental Council Registration Certificate
    d) Up-to-date Refresher Training Certificate

1.23 AVIATION MEDICAL ASSESSOR

The Chairman of the Civil Aviation Authority of Bangladesh shall appoint a Medical Assessor for CAAB. He should either be an Aviation Medicine Specialist with Post-Graduate qualification in Aviation Medicine and practicing only Aviation Medicine, or a practicing doctor with post-graduate qualification in his speciality and also in Aviation Medicine. The Medical Assessor should have worked in Aviation Medical Board for not less than two years and worked as an Aviation Medical Examiner in CAAB for not less than four years.

1.23.1 QUALIFICATIONS AND TRAINING IN AVIATION MEDICINE REQUIREMENTS FOR EMPLOYMENT AS MEDICAL ASSESSOR OF CAAB

For employment as Medical Assessor in the CAAB the following qualifications, training and job experience in aviation medicine are prerequisite:

a) MBBS or Equivalent Medical Graduation Degree
b) Post Graduate Diploma in Aviation Medicine/Aerospace Medicine
c) Minimum twenty years of service experience as a Specialist in Aviation /Aerospace Medicine,
d) Must have adequate satisfactory experiences of teaching Aviation Medicine/Aerospace Medicine/Aviation Psychology in any recognized Pilot Training Flying Academy, Flying Instructor's School, Aero Medical Institute,
e) Must have adequate training in Aero Medical Evacuation,
f) Must have adequate working experiences of responding to Search and Rescue Operations of Inflight Emergencies,
g) Must have adequate working experiences of witnessing the post mortem examination of fatal aircraft accidents,
h) Must have adequate experiences of working as an Aviation Medicine Specialist Member of Aircraft Accident Investigation Boards,
i) Must have the experiences of teaching all types of aircrews, ground crews and their families to improve flight safety.

1.23.2 RESPONSIBILITIES OF THE MEDICAL ASSESSOR OF THE CAAB

The responsibilities of the Medical Assessor of the CAAB shall be as follows:

1.23.2.1 The Medical Assessor of the CAAB shall evaluate all the medical reports submitted to the Medical Assessor Office by the Aviation Medical Examiners to perform medical assessment audits.

1.23.2.2 All the reports must be evaluated for the auditing purposes as well as all those reports when Standard 1.2.4.91 of ICAO Annex 1, introducing a degree of flexibility based on a risk assessment, may need to be applied.

1.23.2.3 The medical assessor makes aeromedical decisions when a degree of flexibility is permitted by ICAO Annex 1, 1.2.4.91, in situations where prescribed standards for a particular licence are not met.

1.23.2.4 Sometimes a Civil Aviation Medical Board, including appropriate specialists, may need to be convened to assist in the process. In all cases, the Medical Assessor of the CAAB must ensure the proper holding of the Civil Aviation Medical Board.

1.23.2.5 The medical assessor shall ensures that aviation medical examiners and aviation paramedics are adequately trained, have practical knowledge and experience of the aviation environment in which the holders of licences and ratings carry out their duties, and that their competency is adequate. The Medical Assessor shall organize and participate Aviation Medical Examiner orientation and training programmes including refresher training in Aviation Medicine and visits in towers and cockpit to orient and familiarize the AMEs in aviation medicine and working environments.

1.23.2.6 The medical assessor is responsible for evaluating the competence of medical examiners by the process of Medical Audit.

1.23.2.7 The Aviation Medical Assessor of the CAAB shall be responsible for the safeguarding of medical confidentiality, although pertinent medical information may be presented by the medical assessor to other officials of the CAAB when justified by operational concerns or when an accredited medical conclusion is sought.

1.23.2.8 The Aviation Medical Assessor of the CAAB shall act also as an AME in addition to his own duties and responsibilities.

1.23.2.9 The Aviation Medical Assessor of the CAAB shall suggest policies, rules and regulations about medical standards and procedures and guidelines to CAAB.

1.23.2.10 The Aviation Medical Assessor of the CAAB shall advise the Chairman of CAAB in Aviation matters related to health and safety.

1.24 CIVIL AVIATION MEDICAL BOARD (CAMB)

A Civil Aviation Medical Board shall be convened to give decision on difficult medical matters. If an applicant applies for appeal aviation medical examination the Chairman of the CAAB should convene a Civil Aviation Medical Board to give decision. The Chairman of the CAAB should also convene a Civil Aviation Medical Board if any time it is recommended by the Medical Assessor of the CAAB for any applicant.

The Civil Aviation Medical Board shall be composed of the following:

1.	President :	Medical Assessor of the CAAB or Aviation Medical Examiner of the CAAB
2.	Member 1:	Aviation Medical Examiner of the CAAB
3.	Member 2:	Aviation Medical Examiner of the CAAB
4.	Member 3:	One subject matter specialist with aviation experience selected by the Medical Assessor of the CAAB

The Medical Assessor or the Aviation Medical Examiner for whose opinion an appeal medical examination is applied by the applicant must not be president or member of the Civil Aviation Medical Board.

Other experts or specialists can be invited in the CAMB for their opinion.

The Board will meet as and when necessary.

Function of the CAMB is to give decision on medical status of the applicant or licence holder on finding deviation, deficit, abnormality or disease state during medical examination and on accredited medical opinion, if required. The CAMB also will formulate or endorse policies, rules and regulations and procedures regarding medical standards.

1.25 CRM AND FIRST AID TRAINING FOR THE AIR CREWS

The Medical Assessor of the CAAB shall contribute as a resource person to the CRM and FIRST AID training for the aircrews as per their requirements.

1.26 AVIATION PARAMEDIC OF CAAB

The Chairman of the CAAB employs Aviation Paramedics to assist the Medical Assessor of the CAAB.

1.26.1 QUALIFICATIONS, TRAINING AND JOB EXPERIENCE REQUIREMENTS FOR EMPLOYMENT AS AVIATION PARAMEDIC

For employment as Aviation Paramedic of the CAAB the following qualifications, training and job experience are prerequisite:

a) Graduate
b) Qualified Senior Medical Assistant
c) Qualified Aviation Physiology Trained Assistant
d) Qualified Aeromedical Evacuation Trained Assistant
e) Has working experience of teaching in any Aeromedical Institute
f) Working experience of teaching and running Altitude Chamber
g) Qualified in Personnel, Office Management and computer operation.

1.27 AVIATION PUBLIC HEALTH CONSULTANT

For the improvement of the aviation aspects of public health in the CAAB, the Chairman of the CAAB appoints Aviation Public Health Consultant.

1.27.1 QUALIFICATIONS, TRAINING AND JOB EXPERIENCE REQUIREMENTS FOR EMPLOYMENT AS AVIATION PUBLIC HEALTH CONSULTANT

The following qualifications, training and job experience are required for employment as Aviation Public Health Consultant of the CAAB:

a) MBBS/Medical Graduate
b) Masters in Public Health (MPH)
c) Qualified in Aviation Medicine
d) Working Experience of Public Health for at least 10 years
e) Working Experience of Aviation Medical Service
f) Capable of working independently

1.28 CLASSES OF MEDICAL ASSESSMENTS

The different medical requirements to safely exercise the privileges of different licences have been recognized by providing three classes of medical assessment as follows:

a) **Class 1 medical assessment**, which applies to applicants for, and holders of:

(i) commercial pilot licences (aeroplane, airship, helicopter and powered-lift categories);
(ii) multi-crew pilot licences (aeroplane category); and

(iii) airline transport pilot licences (aeroplane, helicopter and powered-lift categories).

b) **Class 2 medical assessment**, which applies to applicants for, and holders of:

(i) flight navigator licences;
(ii) flight engineer licences;
(iii) private pilot licences (aeroplane, airship, helicopter and powered-lift categories) and to student pilots flying solo;
(iv) glider pilot licences; and
(v) free balloon pilot licences.

c) **Class 3 medical assessment,** which applies to applicants for, and holders of air traffic controller licences and to student air traffic controllers receiving instruction in an operating environment.

For each of the above classes of medical assessment, the two basic principles when assessing an applicant's medical fitness for aviation duties are that:
a) the applicant shall be physically and mentally capable of performing the duties of the licence or rating applied for or held; and
b) there shall be no medical reason which makes the applicant liable to incapacitation while performing duties.

1.29 VALIDITY PERIODS OF MEDICAL ASSESSMENTS

The predictive power of even a very thorough and comprehensive medical examination is

limited. The validity periods for all Classes of medical assessment are consequently reduced for older licence holders, who have increased medical risks.

The validity period of a medical assessment always commences from the day on which the regulatory medical examination was conducted. If there is a postponement in the issue of the medical assessment (e.g. awaiting laboratory tests results or specialist evaluation) the validity period still commences from the day on which the regulatory medical examination was conducted. The validity period is based on the age at which the examination is undertaken. This is important if an examination is

undertaken near the age at which the validity period changes. For example, an examination for a Class 2 medical assessment undertaken when the applicant is 39 years of age is valid for five years, whereas if he is 40 years old on the day of examination, it is valid for just two years.

If a licence holder undergoes a medical examination to renew his or her medical assessment no more than 45 days before it expires, the validity period of renewed medical assessment may be extended by a corresponding amount. This allows the medical assessments to expire on a constant date of the year. It also allows licence holders and medical examiners a sufficient period of time to arrange an examination without disrupting work schedules.

Subject to an extension of up to 45 days as described above, the maximum periods of validity of the medical assessment for various categories of licence holders are as follows:

A Class 1 medical assessment is valid for a period of:

a) 12 months; or

b) 6 months if:

(i) the applicant is engaged in single-crew commercial air transport operations carrying passengers and, on the date of the medical examination, is more than 40 years old; or

(ii) the applicant is engaged in commercial air transport operations in multi-crew operation and, on the date of the medical examination, is more than 60 years old.

A Class 2 medical assessment is valid for a period of:

a) 60 months; or

b) 24 months if, on the date of the medical examination, the applicant is more than 40 years old and less than 50 years old; or

c) 12 months if, on the date of the medical examination, the applicant is 50 years of age or older.

A Class 3 medical assessment is valid for a period of:

a) 48 months; or

b) 24 months if, on the date of the medical examination, the applicant is more than 40 years old and less than 50 years old; or

c) 12 months if, on the date of the medical examination, the applicant is 50 years of age or older.

The period of validity of a medical assessment may be reduced when clinically indicated. For example, a medical condition, although compatible with licensing, may be of a nature where medical check-ups are required at a frequency greater than normal. In such cases, the period of validity of the medical assessment may be reduced so as to ensure adequate monitoring of the medical condition.

The CAAB has the discretion to defer a medical examination, on an exceptional basis, if a flight crew member is operating in an area distant from medical examination facilities. The deferral should not exceed:

a) in the case of a flight crew member of an aircraft engaged in non-commercial operations, a single period of six months;

b) in the case of a flight crew member of an aircraft engaged in commercial operations, two consecutive periods, each of three months, provided that in both cases a favourable medical report is provided to the CAAB after examination by an aviation medical examiner; or

c) in the case of a private pilot, a single period not exceeding 24 months provided that a medical examination is carried out by an aviation medical examiner of the Contracting State in which the applicant is temporarily located, and a report is sent to the CAAB

.

Experience has shown that deferral of a medical examination is only rarely needed, and every effort should be made to provide access to a medical examiner to enable the normal period of validity to be followed.

1.30 LIMITATION OF PRIVILEGES OF PILOTS WHO HAVE ATTAINED THEIR 60TH BIRTHDAY AND CURTAILMENT OF PRIVILEGES OF PILOTS WHO HAVE ATTAINED THEIR 65TH BIRTHDAY

The CAAB, having issued pilot licences, shall not permit the holders thereof to act as pilot of an aircraft engaged in international commercial air transport operations if the licence holders have attained their 60th birthday or, in the case of operations with more than one pilot, their 65th birthday.

1.31 AGE FOR LICENSES

The minimum age for various licenses shall be as follows:

Student Pilot Licence	….	Not less than 16 years of age
Private Pilot Licence	….	Not less than 17 years of age
Commercial Pilot Licence	….	Not less than 18 years of age
Multi-crew Pilot Licence	….	Not less than 18 years of age
Airline Transport Pilot Licence	….	Not less than 21 years of age
Microlight Pilot Licence	….	Not less than 16 years of age
Free Balloon Pilot Licence	….	Not less than 16 years of age
Glider Pilot Licence	….	Not less than 16 years of age
Flight Engineer Licence	….	Not less than 18 years of age
Flight Navigator Licence	….	Not less than 18 years of age
Air Traffic Controller Licence	….	Not less than 21 years of age
Flight Operations Officer Licence	….	Not less than 21 years of age

Aeronautical station operator licence ….	Not less than 18 years of age
Aircraft maintenance engineer licence ...	Not less than 18 years of age

1.32 HEIGHT FOR LICENSES

As a rule, no height will bar the applicant from obtaining the licence. However in extremes of height actual test in the cockpit regarding accessibility and maneuverability of controls and instruments with seat adjustments will be tested before assessing him/her 'fit'.

1.33 WEIGHT FOR LICENSES

As a rule, no weight will bar the applicant from obtaining the licence. However those with excessive weight or obese i.e. Body Mass Index [BMI = weight (kg) / height (m^2)] > 30, will be discouraged to take up the flying profession especially if he has family history of diabetes, coronary artery disease or hypertension. In grossly obese (BMI > 40) cases actual test in the cockpit regarding accessibility and maneuverability of controls and instruments with seat adjustments will be tested before assessing him/her 'fit'.

PART 2 MEDICAL STANDARDS FOR LICENCING REQUIREMENT

The medical requirements for the different class of medical assessment are as follows:

Class 1 Medical Assessment	**Class 2 Medical Assessment**	**Class 3 Medical Assessment**
1.1 Assessment issue and renewal 1.1.1 An applicant for a commercial pilot licence — aeroplane, airship, helicopter or powered-lift, a multi-crew pilot licence — aeroplane, or an airline transport pilot licence — aeroplane, helicopter or powered-lift will undergo an initial medical examination for the issue of a Class 1 Medical Assessment. 1.1.1.2 Except where otherwise stated in this section, holders of commercial pilot licences — aeroplane, airship, helicopter or powered-lift, multi-crew pilot licences — aeroplane, or airline transport pilot licences — aeroplane, helicopter or powered-lift will have their Class 1 Medical Assessments renewed at intervals not exceeding those specified in 1.28. 1.1.1.3 When the medical assessor is satisfied that the requirements of this section and the general provisions of 1.4 and 1.27 have been met, a Class 1 Medical Assessment may be issued to the applicant.	**2.1 Assessment issue and renewal** 2.1.1 An applicant for a private pilot licence — aeroplane, airship, helicopter or powered-lift, a glider pilot licence, a free balloon pilot licence, a flight engineer licence or a flight navigator licence will undergo an initial medical examination for the issue of a Class 2 Medical Assessment. 2.1.1.2 Except where otherwise stated in this section, holders of private pilot licences — aeroplane, airship, helicopter or powered-lift, glider pilot licences, free balloon pilot licences, flight engineer licences or flight navigator licences will have their Class 2 Medical Assessments renewed at intervals not exceeding those specified in 1.28. 2.1.1.3 When the medical assessor is satisfied that the requirements of this section and the general provisions of 1.4 and 1.27 have been met, a Class 2 Medical Assessment may be issued to the applicant.	**3.1 Assessment issue and renewal** 3.1.1 An applicant for an air traffic controller licence will undergo an initial medical examination for the issue of a Class 3 Medical Assessment. 3.1.1.2 Except where otherwise stated in this section, holders of air traffic controller licences will have their Class 3 Medical Assessments renewed at intervals not exceeding those specified in 1.28. 3.1.1.3 When the medical assessor is satisfied that the requirements of this section and the general provisions of 1.4 and 1.27 have been met, a Class 3 Medical Assessment may be issued to the applicant.

Class 1 Medical Assessment	**Class 2 Medical Assessment**	**Class 3 Medical Assessment**
1.2 Physical and mental requirements The medical examination for a class 1 Medical Assessment will be based on the following requirements.	**2.2 Physical and mental requirements** The medical examination for a class 1 Medical Assessment will be based on the following requirements.	**3.2 Physical and mental requirements** The medical examination for a class 1 Medical Assessment will be based on the following requirements.
General 1.2.1 The applicant will 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.	**General** 2.2.1 The applicant will 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.	**General** 3.2.1 The applicant will not suffer from any disease or disability which could render that applicant likely to become suddenly unable to perform duties safely.
Mental health and behavioural disorder 1.1 The applicant will have no established medical history or clinical diagnosis of: a) an organic mental disorder; b) a mental or behavioural disorder due to use of psychoactive substances; this includes dependence syndrome induced by alcohol or other psychoactive substances; c) schizophrenia or a schizotypal or delusional disorder; d) a mood (affective) disorder; e) a neurotic, stress-related or somatoform disorder; f) a behavioural	**Mental health and behavioural disorder** 2.1 The applicant will have no established medical history or clinical diagnosis of: a) an organic mental disorder; b) a mental or behavioural disorder due to psychoactive substance use; this includes dependence syndrome induced by alcohol or other psychoactive substances; c) schizophrenia or a schizotypal or delusional disorder; d) a mood (affective) disorder; e) a neurotic, stress-related or somatoform disorder; f) a behavioural	**Mental health and behavioural disorder** 3.1 The applicant will have no established medical history or clinical diagnosis of: a) an organic mental disorder; b) a mental or behavioural disorder due to psychoactive substance use; this includes dependence syndrome induced by alcohol or other psychoactive substances; c) schizophrenia or a schizotypal or delusional disorder; d) a mood (affective) disorder; e) a neurotic, stress-related or somatoform disorder; f) a behavioural

syndrome associated with physiological disturbances or physical factors; g) a disorder of adult personality or behaviour, particularly if manifested by repeated overt acts; h) mental retardation; i) a disorder of psychological development; j) a behavioural or emotional disorder, with onset in childhood or adolescence; or k) a mental disorder not otherwise specified; such as might render the applicant unable to safely exercise the privileges of the licence applied for or held. 1.2 An applicant with depression, being treated with antidepressant medication, will be assessed as unfit unless the medical assessor, having access to the details of the case concerned, considers the applicant's condition as unlikely to interfere with the safe exercise of the applicant's licence and rating privileges. Note 1.— Guidance on assessment of applicants treated with antidepressant medication is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	syndrome associated with physiological disturbances or physical factors; g) a disorder of adult personality or behaviour, particularly if manifested by repeated overt acts; h) mental retardation; i) a disorder of psychological development; j) a behavioural or emotional disorder, with onset in childhood or adolescence; or k) a mental disorder not otherwise specified; such as might render the applicant unable to safely exercise the privileges of the licence applied for or held. 2.2 An applicant with depression, being treated with antidepressant medication, will be assessed as unfit unless the medical assessor, having access to the details of the case concerned, considers the applicant's condition as unlikely to interfere with the safe exercise of the applicant's licence and rating privileges. Note 1.— Guidance on assessment of applicants treated with antidepressant medication is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	syndrome associated with physiological disturbances or physical factors; g) a disorder of adult personality or behaviour, particularly if manifested by repeated overt acts; h) mental retardation; i) a disorder of psychological development; j) a behavioural or emotional disorder, with onset in childhood or adolescence; or k) a mental disorder not otherwise specified; such as might render the applicant unable to safely exercise the privileges of the licence applied for or held 3.2 An applicant with depression, being treated with antidepressant medication, will be assessed as unfit unless the medical assessor, having access to the details of the case concerned, considers the applicant's condition as unlikely to interfere with the safe exercise of the applicant's licence and rating privileges. Note 1.— Guidance on assessment of applicants treated with antidepressant medication is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— Mental and behavioural disorders are defined in accordance with the clinical descriptions and diagnostic guidelines of the World Health Organization as given in the International Statistical Classification of Diseases and Related Health Problems, 10th Edition — Classification of Mental and Behavioural Disorders, WHO 1992. This document contains detailed descriptions of the diagnostic requirements, which may be useful for their application to medical assessment.	Note 2.— Mental and behavioural disorders are defined in accordance with the clinical descriptions and diagnostic guidelines of the World Health Organization as given in the International Statistical Classification of Diseases and Related Health Problems, 10th Edition — Classification of Mental and Behavioural Disorders, WHO 1992. This document contains detailed descriptions of the diagnostic requirements, which may be useful for their application to medical assessment.	Note 2.— Mental and behavioural disorders are defined in accordance with the clinical descriptions and diagnostic guidelines of the World Health Organization as given in the International Statistical Classification of Diseases and Related Health Problems, 10th Edition — Classification of Mental and Behavioural Disorders, WHO 1992. This document contains detailed descriptions of the diagnostic requirements, which may be useful for their application to medical assessment.

Neurological 1.2 The applicant will have no established medical history or clinical diagnosis of any of the following: a) a progressive or non-progressive disease of the nervous system, the effects of which are likely to interfere with the safe exercise of the applicant's licence and rating privileges; b) epilepsy; or c) any disturbance of consciousness without satisfactory medical explanation of cause. 1.2.1 The applicant will not have suffered any head injury, the effects of which are likely to interfere with the safe exercise of the applicant's licence and rating privileges.	**Neurological** 2.2 The applicant will have no established medical history or clinical diagnosis of any of the following: a) a progressive or non-progressive disease of the nervous system, the effects of which are likely to interfere with the safe exercise of the applicant's licence and rating privileges; b) epilepsy; c) any disturbance of consciousness without satisfactory medical explanation of cause. 2.2.1 The applicant will not have suffered any head injury, the effects of which are likely to interfere with the safe exercise of the applicant's licence and rating privileges.	**Neurological** 3.2 The applicant will have no established medical history or clinical diagnosis of any of the following: a) a progressive or non-progressive disease of the nervous system, the effects of which are likely to interfere with the safe exercise of the applicant's licence and rating privileges; b) epilepsy; or c) any disturbance of consciousness without satisfactory medical explanation of cause. 3.2.1 The applicant will not have suffered any head injury, the effects of which are likely to interfere with the safe exercise of the applicant's licence and rating privileges.
Cardiovascular 1.3 The applicant will not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. a) An applicant who has undergone coronary bypass grafting or angioplasty (with or without stenting) or other cardiac intervention or who has a history of myocardial infarction or who suffers from any other potentially incapacitating cardiac condition will be assessed as unfit unless the applicant's cardiac condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to	**Cardiovascular** 2.3 The applicant will not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. a) An applicant who has undergone coronary by-pass grafting or angioplasty (with or without stenting) or other cardiac intervention or who has a history of myocardial infarction or who suffers from any other potentially incapacitating cardiac condition will be assessed as unfit unless the applicant's cardiac condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to	**Cardiovascular** 3.3 The applicant will not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. a) An applicant who has undergone coronary bypass grafting or angioplasty (with or without stenting) or other cardiac intervention or who has a history of myocardial infarction or who suffers from any other potentially incapacitating cardiac condition will be assessed as unfit unless the applicant's cardiac condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to

interfere with the safe exercise of the applicant's licence or rating privileges. b) An applicant with an abnormal cardiac rhythm will be assessed as unfit unless the cardiac arrhythmia has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges.	interfere with the safe exercise of the applicant's licence or rating privileges. b) An applicant with an abnormal cardiac rhythm will be assessed as unfit unless the cardiac arrhythmia has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges.	interfere with the safe exercise of the applicant's licence and rating privileges. b) An applicant with an abnormal cardiac rhythm will be assessed as unfit unless the cardiac arrhythmia has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence and rating privileges.
Note. — Guidance on cardiovascular evaluation is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). Electrocardiography will form part of the heart examination for the first issue of a Medical Assessment. c) Electrocardiography will be included in re-examinations of applicants between the ages of 30 and 40 no less frequently than every two years. d) Electrocardiography will be included in re-examinations of applicants over the age of 40 no less frequently than annually. Note 1.— The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence, in isolation, to justify an 'unfit' medical assessment. The results of further cardiovascular examination and / or investigation should be considered before any	Note. — Guidance on cardiovascular evaluation is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). Electrocardiography will form part of the heart examination for the first issue of a Medical Assessment c) Electrocardiography will be included in re-examinations of applicants after the age of 40 no less than every two years. d) Electrocardiography will form part of the heart examination for the first issue of a Medical Assessment after the age of 40. Note 1.— The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence, in isolation, to justify an 'unfit' medical assessment. The results of further cardiovascular examination and / or investigation should be considered before any	Note. — Guidance on cardiovascular evaluation is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). Electrocardiography will form part of the heart examination for the first issue of a Medical Assessment. c) Electrocardiography will be included in re-examinations of applicants after the age of 40 no less frequently than every two years. Note 1. — The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence, in isolation, to justify an 'unfit' medical assessment. The results of further cardiovascular examination and / or investigation should be considered before any

Medical Assessment decision is based on an abnormal routine electrocardiography result. Note 2. — Guidance on resting and exercise electro-cardiography is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). d) The systolic and diastolic blood pressures will be within normal limits. The use of drugs for control of high blood pressure will be disqualifying except for those drugs, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges. Note. — Guidance on the subject is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). f) There will be no significant functional or structural abnormality of the circulatory system.	Medical Assessment decision is based on an abnormal routine electrocardiography result. Note 2. — Guidance on resting and exercise electrocardiography is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). d) The systolic and diastolic blood pressures will be within normal limits. The use of drugs for control of high blood pressure will be disqualifying except for those drugs, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges. Note. — Guidance on the subject is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). f) There will be no significant functional or structural abnormality of the circulatory system.	Medical Assessment decision is based on an abnormal routine electrocardiography result. Note 2.— Guidance on resting and exercise electrocardiography is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). d) The systolic and diastolic blood pressures will be within normal limits.The use of drugs for control of high blood pressure is disqualifying except for those drugs, the use of which is compatible with the safe exercise of the applicant's licence privileges. Note. — Guidance on this subject is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). f) There will be no significant functional or structural abnormality of the circulatory system.

Respiratory	**Respiratory**	**Respiratory**
1.4 There will be no acute disability of the lungs or any active disease of the structures of the lungs, mediastinum or pleurae likely to result in incapacitating symptoms during normal or emergency operations. a) Chest radiography will form part of the initial examination. b) Chest radiography will form part of examinations, other than the initial examination, when asymptomatic pulmonary disease can be expected. 1.4.1 Applicants with chronic obstructive pulmonary disease will be assessed as unfit unless the applicant's condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges. 1.4.2 Applicants with asthma causing significant symptoms or likely to cause incapacitating symptoms during normal or emergency operations will be assessed as unfit. The use of drugs for control of asthma will be disqualifying except for those drugs, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges. Note.— Guidance on hazards of medication and drugs is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	2.4 There will be no disability of the lungs or any active disease of the structures of the lungs, mediastinum or pleura likely to result in incapacitating symptoms during normal or emergency operations. a) Chest radiography will for part of the initial examination, and other examinations, when asymptomatic pulmonary disease can be expected. 2.4.1 Applicants with chronic obstructive pulmonary disease will be assessed as unfit unless the applicant's condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges. 2.4.2 Applicants with asthma causing significant symptoms or likely to cause incapacitating symptoms during normal or emergency operations will be assessed as unfit. The use of drugs for control of asthma will be disqualifying except for those drugs, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges. Note.— Guidance on hazards of medication and drugs is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	3.4 There will be no disability of the lungs or any active disease of the structures of the lungs, mediastinum or pleurae likely to result in incapacitating symptoms. a) Chest radiography will form part of the initial examination. b) Chest radiography will form part of examinations, other than the initial examination, when asymptomatic pulmonary disease can be expected. 3.4.1 Applicants with chronic obstructive pulmonary disease will be assessed as unfit unless the applicant's condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges. 3.4.2 Applicants with asthma causing significant symptoms or likely to cause incapacitating symptoms will be assessed as unfit. The use of drugs for control of asthma will be disqualifying except for those drugs, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges. Note.— Guidance on hazards of medications is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).

1.4.3 Applicants with active pulmonary tuberculosis will be assessed as unfit. Applicants with quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit. Note 1.— Guidance on assessment of respiratory diseases is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). Note 2.— Guidance on hazards of medications and drugs is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	2.4.3 Applicants with active pulmonary tuberculosis will be assessed as unfit. Applicants with quiescent or healed lesions, known to be tuberculous or presumably tuberculous in origin, may be assessed as fit. Note 1.— Guidance on assessment of respiratory diseases is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). Note 2.— Guidance on hazards of medication and drugs is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	3.4.3 Applicants with active pulmonary tuberculosis will be assessed as unfit. Applicants with quiescent or healed lesions, known to be tuberculous or presumably tuberculous in origin, may be assessed as fit. Note 1.— Guidance on assessment of respiratory diseases is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). Note 2.— Guidance on hazards of medication and drugs is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).

Gastrointestinal	**Gastrointestinal**	**Gastrointestinal**
1.5 Applicants with significant impairment of function of the gastrointestinal tract or its adnexa will be assessed as unfit.	2.5 Applicants with significant impairment of the function of the gastrointestinal tract or its adnexa will be assessed as unfit.	3.5 Applicants with significant impairment of the function of the gastrointestinal tract or its adnexa will be assessed as unfit.
1.5.1 Applicants will be completely free from those hernias that might give rise to incapacitating symptoms.	2.5.1 Applicants will be completely free from those hernias that might give rise to incapacitating symptoms.	3.5.1 Applicants with sequelae of disease of or surgical intervention on any part of the digestive tract or its adnexa, likely to cause incapacitation, in particular any obstructions due to stricture or compression, will be assessed as unfit.
1.5.2 Applicants with sequelae of disease of, or surgical intervention on, any part of the digestive tract or its adnexa, likely to cause incapacitation in flight, in particular any obstruction due to stricture or compression, will be assessed as unfit.	2.5.2 Applicants with sequelae of disease of or surgical intervention on any part of the digestive tract or its adnexa, likely to cause incapacitation in flight, in particular any obstruction due to stricture or compression, will be assessed as unfit.	3.5.1.1 An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexa, with a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical assessor, having access to the details of the operation concerned, considers that the effects of the operation are not likely to cause incapacitation.
1.5.2.1 An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexa with a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical assessor, having access to the details of the operation concerned, considers that the effects of the operation are not likely to cause incapacitation in flight.	2.5.2.1 An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexa with a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical assessor, having access to the details of the operation concerned, considers that the effects of the operation are not likely to cause incapacitation in flight.	

Metabolic, nutritional, and endocrine	**Metabolic, nutritional, and endocrine**	**Metabolic, nutritional, and endocrine**
1.6 Applicants with metabolic, nutritional or endocrine disorders that are likely to interfere with the safe exercise of their licence and rating privileges will be assessed as unfit.	2.6 Applicants with metabolic, nutritional or endocrine disorders that are likely to interfere with the safe exercise of their licence and rating privileges will be assessed as unfit.	3.6 Applicants with metabolic, nutritional or endocrine disorders that are likely to interfere with the safe exercise of their licence and rating privileges will be assessed as unfit.
1.6.1 Applicants with insulin-treated diabetes mellitus will be assessed as unfit.	2.6.1 Applicants with insulin-treated diabetes mellitus will be assessed as unfit.	3.6.1 Applicants with insulin-treated diabetes mellitus will be assessed as unfit.
Note. — Guidance on assessment of insulin treated diabetic applicants under the provisions of 1.2.4.8 is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	Note. — Guidance on assessment of insulin treated diabetic applicants under the provisions of 1.2.4.8 is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	Note. — Guidance on assessment of insulin treated diabetic applicants under the provisions of 1.2.4.8 is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).
1.6.1.1 Applicants with non-insulin-treated diabetes mellitus will be assessed as unfit unless the condition is shown to be satisfactorily controlled by diet alone or by diet combined with oral anti-diabetic medication, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges.	2.6.2.1 Applicants with non-insulin-treated diabetes mellitus will be assessed as unfit unless the condition is shown to be satisfactorily controlled by diet alone or by diet combined with oral anti-diabetic medication, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges.	3.6.1.1 Applicants with non-insulin-treated diabetes will be assessed as unfit unless the condition is shown to be satisfactorily controlled by diet alone or by diet combined with oral anti-diabetic medication, the use of which is compatible with the safe exercise of the applicant's licence and rating privileges.
Note.— Guidance on assessment of diabetic applicants is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	Note.— Guidance on assessment of diabetic applicants is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	Note.— Guidance on assessment of diabetic applicants is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).

Blood and lymphatic 1.7 Applicants with diseases of the blood and/or the lymphatic system will be assessed as unfit unless adequately investigated and their condition found unlikely to interfere with the safe exercise of their licence and rating privileges. Note. — Sickle cell trait or other haemoglobinopathic traits are usually compatible with a fit assessment.	**Blood and lymphatic** 2.7 Applicants with diseases of the blood and/or the lymphatic system will be assessed as unfit unless adequately investigated and their condition found unlikely to interfere with the safe exercise of their licence and rating privileges. Note. — Sickle cell trait and other haemoglobinopathic traits are usually compatible with a fit assessment.	**Blood and lymphatic** 3.7 Applicants with diseases of the blood and/or the lymphatic system will be assessed as unfit, unless adequately investigated and their condition found unlikely to interfere with the safe exercise of their licence and rating privileges. Note. — Sickle cell trait and other haemoglobinopathic traits are usually compatible with a fit assessment.
Renal and genito-urinary 1.8 Applicants with renal or genito-urinary disease will be assessed as unfit, unless adequately investigated and their condition found unlikely to interfere with the safe exercise of their licence and rating privileges. 1.8.1 Urine examination will form part of the medical examination and abnormalities will be adequately investigated. Note. — Guidance on urine examination and evaluation of abnormalities is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). 1.8.2 Applicants with sequelae of disease of or surgical procedures on the kidneys or the genito-urinary	**Renal and genito-urinary** 2.8 Applicants with renal or genito-urinary disease will be assessed as unfit unless adequately investigated and their condition found unlikely to interfere with the safe exercise of their licence and rating privileges. 2.8.1 Urine examination will form part of the medical examination and abnormalities will be adequately investigated. Note. — Guidance on urine examination and evaluation of abnormalities is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). 2.8.2 Applicants with sequelae of disease of, or surgical procedures on, the kidneys or the genito-urinary	**Renal and genito-urinary** 3.8 Applicants with renal or genito-urinary disease will be assessed as unfit unless adequately investigated and their condition found unlikely to interfere with the safe exercise of their licence and rating privileges. 3.8.1 Urine examination will form part of the medical examination and abnormalities will be adequately investigated. Note. — Guidance on urine examination and evaluation of abnormalities is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). 3.8.2 Applicants with sequelae of disease of, or surgical procedures on the kidneys or the genito-urinary

tract, in particular obstructions due to stricture or compression, will be assessed as unfit unless the applicant's condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges.	tract, in particular obstructions due to stricture or compression, will be assessed as unfit unless the applicant's condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges.	tract, in particular obstructions due to stricture or compression, will be assessed as unfit unless the applicant's condition has been investigated and evaluated in accordance with best medical practice and is assessed not likely to interfere with the safe exercise of the applicant's licence or rating privileges.
1.8.2.1 Applicants who have undergone nephrectomy will be assessed as unfit unless the condition is well compensated.	2.8.2.1 Applicants who have undergone nephrectomy will be assessed as unfit unless the condition is well compensated.	3.8.2.1 Applicants who have undergone nephrectomy will be assessed as unfit unless the condition is well compensated.

Human Immunodeficiency Virus 1.9 Applicants who are seropositive for human immunodeficiency virus (HIV) will be assessed as unfit unless full investigation provides no evidence of HIV-associated diseases likely to give rise to incapacitating symptoms.. Note 1. — Early diagnosis and active management of HIV disease with antiretroviral therapy reduces morbidity and improves prognosis and thus increases the likelihood of a fit assessment. Note 2. — Guidance on the assessment of applicants who are seropositive for human immunodeficiency virus (HIV) is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	**Human Immunodeficiency Virus** 2.9 Applicants who are seropositive for human immunodeficiency virus (HIV) will be assessed as unfit unless full investigation provides no evidence of HIV-associated diseases likely to give rise to incapacitating symptoms.. Note 1. — Early diagnosis and active management of HIV disease with antiretroviral therapy reduces morbidity and improves prognosis and thus increases the likelihood of a fit assessment. Note 2. — Guidance on the assessment of applicants who are seropositive for human immunodeficiency virus (HIV) is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	**Human Immunodeficiency Virus** 3.9 Applicants who are seropositive for human immunodeficiency virus (HIV) will be assessed as unfit unless full investigation provides no evidence of HIV-associated diseases likely to give rise to incapacitating symptoms.. Note 1. — Early diagnosis and active management of HIV disease with antiretroviral therapy reduces morbidity and improves prognosis and thus increases the likelihood of a fit assessment. Note 2. — Guidance on the assessment of applicants who are seropositive for human immunodeficiency virus (HIV) is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).
Reproductive 1.10 Applicants with reproductive system disorders that are likely to interfere with the safe exercise of their licence and rating privileges will be assessed as unfit. 1.10.1 Applicants who are pregnant will be assessed as unfit unless obstetrical evaluation and continued medical supervision indicate a low-risk uncomplicated pregnancy. 1.10.1.1 For applicants with a low-risk uncomplicated pregnancy, evaluated and supervised in accordance with 1.10.1 the	**Reproductive** 2.10 Applicants with reproductive system disorders that are likely to interfere with the safe exercise of their licence and rating privileges will be assessed as unfit. 2.10.1 Applicants who are pregnant will be assessed as unfit unless obstetrical evaluation and continued medical supervision indicate a low-risk uncomplicated pregnancy. 2.10.1.1 For applicants with a low-risk uncomplicated pregnancy, evaluated and supervised in accordance with 2.10.1 the	**Reproductive** 3.10 Applicants with reproductive system disorders that are likely to interfere with the safe exercise of their licence and rating privileges will be assessed as unfit. 3.10.1 Applicants who are pregnant will be assessed as unfit unless obstetrical evaluation and continued medical supervision indicate a low-risk uncomplicated pregnancy. 3.10.1.1 During the gestational period, precautions should be taken for the timely relief of an air traffic controller in the event

fit assessment should be limited to the period from the end of the 12th week until the end of the 26th week of gestation. 1.10.2 Following confinement or termination of pregnancy, the applicant will not be permitted to exercise the privileges of her licence until she has undergone re-evaluation in accordance with best medical practice and it has been determined that she is able to safely exercise the privileges of her licence and ratings.	fit assessment should be limited to the period from the end of the 12th week until the end of the 26th week of gestation. 2.10.2 Following confinement or termination of pregnancy, the applicant will not be permitted to exercise the privileges of her licence until she has undergone re-evaluation in accordance with best medical practice and it has been determined that she is able to safely exercise the privileges of her licence and ratings.	of early onset of labour or other complications. 3.10.1 For applicants with a low-risk uncomplicated pregnancy, evaluated and supervised in accordance with 3.10.1, the fit assessment should be limited to the period until the end of the 34th week of gestation. 3.10.2 Following confinement or termination of pregnancy the applicant will not be permitted to exercise the privileges of her licence until she has undergone re-evaluation in accordance with best medical practice and it has been determined that she is able to safely exercise the privileges of her licence and ratings.

Musculoskeletal 1.11 The applicant will not possess any abnormality of the bones, joints, muscles, tendons or related structures which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. Note. — Any sequelae after lesions affecting the bones, joints, muscles or tendons, and certain anatomical defects will normally require functional assessment to determine fitness.	**Musculoskeletal** 2.11 The applicant will not possess any abnormality of the bones, joints, muscles, tendons or related structures which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. Note. — Any sequelae after lesions affecting the bones, joints, muscles or tendons, and certain anatomical defects will normally require functional assessment to determine fitness.	**Musculoskeletal** 3.11 The applicant will not possess any abnormality of the bones, joints, muscles, tendons or related structures which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. Note. — Any sequelae after lesions affecting the bones, joints, muscles or tendons, and certain anatomical defects will normally require functional assessment to determine fitness.
Ear, nose, and throat 1.12 The applicant will not possess any abnormality or disease of the ear or related structures which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. 1.12.1 There will be: a) no disturbance of vestibular function; b) no significant dysfunction of the Eustachian tubes; and c) no unhealed perforation of the tympanic membranes. 1.12.1.1 A single dry perforation of the tympanic membrane need not render the applicant unfit. Note.— Guidance on testing	**Ear, nose, and throat** 2.12 The applicant will not possess any abnormality or disease of the ear or related structures which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. 2.12.1 There will be: a) no disturbance of the vestibular function; b) no significant dysfunction of the Eustachian tubes; and c) no unhealed perforation of the tympanic membranes. 2.12.1.1 A single dry perforation of the tympanic membrane need not render the applicant unfit. Note.—Guidance on testing of the vestibular function is	**Ear, nose, and throat** 3.12 The applicant will not possess any abnormality or disease of the ear or related structures which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. 3.12.1 There will be no malformation or any disease of the nose, buccal cavity or upper respiratory tract which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. 3.12.2 Applicants with stuttering or other speech defects sufficiently severe to cause impairment of speech communication will be assessed as unfit.

of the vestibular function is contained in ICAO Manual of Civil Aviation Medicine (Doc 8984). 1.12.2 There will be: a) no nasal obstruction; and b) no malformation nor any disease of the buccal cavity or upper respiratory tract which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. 1.12.3 Applicants with stuttering or other speech defects sufficiently severe to cause impairment of speech communication will be assessed as unfit.	contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984). 2.12.2 There will be: a) no nasal obstruction; and b) no malformation nor any disease of the buccal cavity or upper respiratory tract; which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. 2.12.3 Applicants with stuttering and other speech defects sufficiently severe to cause impairment of speech communication will be assessed as unfit.	

Vision	**Vision**	**Vision**
1.13 Visual requirements The medical examination will be based on the following requirements.	2.13 Visual requirements The medical examination will be based on the following requirements.	3.13 Visual requirements The medical examination will be based on the following requirements.
1.13.1 The function of the eyes and their adnexa will be normal. There will be no active pathological condition, acute or chronic, or 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 licence and rating privileges.	2.13.1 The function of the eyes and their adnexa will be normal. There will be no active pathological condition, acute or chronic, or 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 licence and rating privileges.	3.13.1 The function of the eyes and their adnexa will be normal. There will be no active pathological condition, acute or chronic, or 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 licence and rating privileges.
1.13.2 Distant visual acuity with or without correction will be 6/9 or better in each eye separately, and binocular visual acuity will 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: a) such correcting lenses are worn during the exercise of the privileges of the licence or rating applied for or held; and b) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licence.	2.13.2 Distant visual acuity with or without correction will be 6/12 or better in each eye separately, and binocular visual acuity will 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: a) such correcting lenses are worn during the exercise of the privileges of the licence or rating applied for or held; and b) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licence.	3.13.2 Distant visual acuity with or without correction will be 6/9 or better in each eye separately, and binocular visual acuity will 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: a) such correcting lenses are worn during the exercise of the privileges of the licence or rating applied for or held; and b) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licence.
Note 1.— 1.13.2 b) is the subject of Standards in	Note.— An applicant accepted as meeting these	Note.— An applicant accepted as meeting these

Annex 6, Part I. Note 2.— 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 medical assessor. Both uncorrected and corrected 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.	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 medical assessor. Both uncorrected and corrected 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.	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 medical assessor. Both uncorrected and corrected 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.
1.13.2.1 Applicants may use contact lenses to meet this requirement provided that: a) the lenses are monofocal and non-tinted; b) the lenses are well tolerated; and c) a pair of suitable correcting spectacles is kept readily available during the exercise of the licence privileges.	2.13.2.1 Applicants may use contact lenses to meet this requirement provided that: a) the lenses are monofocal and non-tinted; b) the lenses are well tolerated; and c) a pair of suitable correcting spectacles is kept readily available during the exercise of the licence privileges.	3.13.2.1 Applicants may use contact lenses to meet this requirement provided that: a) the lenses are monofocal and non-tinted; b) the lenses are well tolerated; and c) a pair of suitable correcting spectacles is kept readily available during the exercise of the licence 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.	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.	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.

1.13.2.2 Applicants with a large refractive error will use contact lenses or high-index spectacle lenses.	2.13.2.2 Applicants with a large refractive error will use contact lenses or high-index spectacle lenses.	3.13.2.2 Applicants with a large refractive error will use contact lenses or high-index spectacle lenses.
Note. — If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.	Note. — If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.	Note. — If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.
Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 will be required to provide a full ophthalmic report prior to initial Medical Assessment and every five years thereafter.	2.13.2.3 Recommendation.— 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 Assessment and every five years thereafter.	3.13.2.3 Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 will be required to provide a full ophthalmic report prior to initial Medical Assessment 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 1.— The purpose of the required ophthalmic examination is (1) to ascertain normal visual performance, and (2) to identify any significant pathology.	Note 1.— The purpose of the required ophthalmic examination is (1) to ascertain normal vision performance, and (2) to identify any significant pathology.
Note 2.— Guidance on the assessment of monocular applicants under the provisions of 1.2.4.8 is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	Note 2.— Guidance on the assessment of monocular applicants under the provisions of 1.2.4.8 is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).	Note 2.— Guidance on the assessment of monocular applicants under the provisions of 1.2.4.8 is contained in the ICAO Manual of Civil Aviation Medicine (Doc 8984).
1.13..3 Applicants who have undergone surgery affecting the refractive status of the eye will be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licence and rating privileges.	2.13.3 Applicants who have undergone surgery affecting the refractive status of the eye will be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licence and rating privileges.	3.13.3 Applicants who have undergone surgery affecting the refractive status of the eye will be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licence and rating privileges.
1.13.4 The applicant will have the ability to read, while wearing the correcting lenses, if any, required by 1.13.2, the N5 chart or its equivalent at a distance	2.13.4 The applicant will have the ability to read, while wearing the correcting lenses, if any, required by 2.13.2, the N5 chart or its	3.13.4 The applicant will have the ability to read, while wearing the correcting lenses, if any, required by 3.13.2, the N5 chart or its

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 correction already prescribed in accordance with 1.13.2; if no such correction is prescribed, a pair of spectacles for near use will be kept readily available during the exercise of the privileges of the licence. When near correction is required, the applicant will 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 ICAO Manual of Civil Aviation Medicine (Doc 8984). Note 2. — An 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	equivalent at a distance selected by that applicant in the range of 30 to 50 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 correction already prescribed in accordance with 2.13.2; if no such correction is prescribed, a pair of spectacles for near use will be kept readily available during the exercise of the privileges of the licence. When near correction is required, the applicant will demonstrate that one pair of spectacles is sufficient to meet both distant and near visual requirements. Note 1. — N5 refers to the size of typeface used. For further details, see the ICAO Manual of Civil Aviation Medicine (Doc 8984). Note 2. — An applicant who needs near correction to meet the 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	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 correction already prescribed in accordance with 3.13.2; if no such correction is prescribed, a pair of spectacles for near use will be kept readily available during the exercise of the privileges of the licence. When near correction is required, the applicant will 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 ICAO Manual of Civil Aviation Medicine (Doc 8984). Note 2.— An applicant who needs near correction to meet the requirement will require "look-over", bifocal or perhaps multi-focal lenses in order to read radar screens, visual displays and written or printed material and also to make use of distant vision, through the windows, without removing the lenses. Single-vision near correction (full lenses of one power only, appropriate for reading) may be acceptable for certain air traffic control duties. However, it should be

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. 1.13.4.1 When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles will be kept available for immediate use. 1.13.5 The applicant will be required to have normal fields of vision. 1.13.6 The applicant will be required to have normal binocular function. 1.13.6.1 Reduced stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia need not be disqualifying.	applicant is expected to advise the refractionist of the reading distances for the visual flight deck tasks relevant to the types of aircraft in which the applicant is likely to function. 2.13.4.1 When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles will be kept available for immediate use. 2.13.5 The applicant will be required to have normal fields of vision. 2.13.6 The applicant will be required to have normal binocular function. 2.13.6.1 Reduced stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia need not be disqualifying.	realized that single-vision near correction significantly reduces distant visual acuity. 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 air traffic control duties the applicant is likely to perform. 3.13.4.1 When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles will be kept available for immediate use. 3.13..5 The applicant will be required to have normal fields of vision. 3.13.6 The applicant will be required to have normal binocular function. 3.13.6.1 Reduced stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia need not be disqualifying.
1.14 Colour Perception Requirement The applicant will be tested for his ability to correctly identify a series of pseudo-isochromatic plates in day	**2.14 Colour Perception Requirement** The applicant will be tested for his ability to correctly identify a series of pseudo-isochromatic plates in day	**3.14 Colour Perception Requirement** The applicant will be tested for his ability to correctly identify a series of pseudo-isochromatic plates in day

light or in artificial light of the same colour temperature such as that provided by CIE standard illuminant "C" or "D_{65}" as specified by International Commission of Illumination (CIE). An applicant failing to obtain a satisfactory score in such a test may nevertheless be assessed as 'fit' provided the applicant is able to readily and correctly identify 'aviation colour lights' displayed by means of recognized Colour Perception Lantern.	light or in artificial light of the same colour temperature such as that provided by CIE standard illuminant "C" or "D_{65}" as specified by International Commission of Illumination (CIE). An applicant failing to obtain a satisfactory score in such a test may nevertheless be assessed as 'fit' provided the applicant is able to readily and correctly identify 'aviation colour lights' displayed by means of recognized Colour Perception Lantern.	light or in artificial light of the same colour temperature such as that provided by CIE standard illuminant "C" or "D_{65}" as specified by International Commission of Illumination (CIE). An applicant failing to obtain a satisfactory score in such a test may nevertheless be assessed as 'fit' provided the applicant is able to readily and correctly identify 'aviation colour lights' displayed by means of recognized Colour Perception Lantern.
1.14.1 The applicant shall be required to demonstrate to perceive readily those colours the perception of which is necessary for the safe performance of the duties.	2.14.1 The applicant shall be required to demonstrate to perceive readily those colours the perception of which is necessary for the safe performance of the duties.	3.14.1 The applicant shall be required to demonstrate to perceive readily those colours the perception of which is necessary for the safe performance of the duties.
1.14.2 The applicant shall be tested for the ability to correctly identify a series of isochromatic plates in daylight or in artificial light.	2.14.2 The applicant shall be tested for the ability to correctly identify a series of isochromatic plates in daylight or in artificial light.	3.14.2 The applicant shall be tested for the ability to correctly identify a series of isochromatic plates in daylight or in artificial light.
1.14.3 An applicant obtaining a satisfactory result shall be assessed as fit. An applicant failing to obtain a satisfactory result in such a test shall be assessed as unfit. He may be assessed further in lantern test where he may be assessed as fit if the defect is found to be defective safe, otherwise unfit if found defective unsafe.	2.14.3An applicant obtaining a satisfactory result shall be assessed as fit. An applicant failing to obtain a satisfactory result in such a test shall be assessed as unfit. He may be assessed further in lantern test where he may be assessed as fit if the defect is found to be defective safe,otherwise unfit if found defective unsafe.	3.14.3An applicant obtaining a satisfactory result shall be assessed as fit. An applicant failing to obtain a satisfactory result in such a test shall be assessed as unfit. He may be assessed further in lantern test where he may be assessed as fit if the defect is found to be defective safe, otherwise unfit if found defective unsafe.

Sunglasses worn during the exercise of the privileges of the licence should be of neutral grey tint and shall be used only in day light and shall not be used in night time. It will neither be non-polarizing nor polychromatic.	Sunglasses worn during the exercise of the privileges of the licence should be of neutral grey tint and shall be used only in day light and shall not be used in night time. It will neither be non-polarizing nor polychromatic.	Sunglasses worn during the exercise of the privileges of the licence should be of neutral grey tint and shall be used only in day light and shall not be used in night time. It will neither be non-polarizing nor polychromatic.

Hearing 1.15 Hearing requirements 1.15.1 The applicant, when tested on a pure-tone audiometer, will 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. 1.15.1.1 An applicant with a hearing loss greater than the above may be declared fit provided that the applicant has normal hearing performance against a background noise that reproduces or simulates the masking properties of flight deck noise upon speech and beacon signals. Note 1.— It is important that the background noise be representative of the noise in the cockpit of the type of aircraft for which the applicant's licence and ratings are valid. Note 2.— In the speech material for discrimination testing, both aviation-relevant phrases and phonetically balanced words are normally used. 1.15.2 Alternatively, a practical hearing test conducted in flight in the cockpit of an aircraft of the type for which the applicant's licence and ratings are valid may be used.	**Hearing** 2.15 Hearing requirements Note.— Attention is called to 1.15.1 on requirements for the issue of instrument rating to applicants who hold a private pilot licence. 2.15.1 Applicants who are unable to hear an average conversational voice in a quiet room, using both ears, at a distance of 2 m from the examiner and with the back turned to the examiner, will be assessed as unfit. 2.15.2. When tested by pure-tone audiometry, an applicant with 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, will be assessed as unfit. 2.14..3 Recommendation.— An applicant who does not meet the requirements in 2.14.2 should undergo further testing in accordance with 1.14.1.1	**Hearing** 3.15 Hearing requirements 3.15.1 The applicant, when tested on a pure-tone audiometer will 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. 3.15.1.1 An applicant with a hearing loss greater than the above may be declared fit provided that the applicant has normal hearing performance against a background noise that reproduces or simulates that experienced in a typical air traffic control working environment. Note 1.— The frequency composition of the background noise is defined only to the extent that the frequency range 600 to 4 800 Hz (speech frequency range) is adequately represented. Note 2.— In the speech material for discrimination testing, both aviation-relevant phrases and phonetically balanced words are normally used. 3.15.2 Alternatively, a practical hearing test conducted in an air traffic control environment representative of the one for which the applicant's licence and ratings are valid may be used.

INVESTIGATION REQUIREMENTS FOR THE DIFFERENT CLASS OF MEDICAL ASSESSMENT

The investigation/test requirements for the different class of medical assessment are as follows:

INVESTIGATIONS REQUIRED FOR MEDICAL ASSESSMENT		
Class 1 Medical Assessment	**Class 2 Medical Assessment**	**Class 3 Medical Assessment**
Tests required: Electrocardiogram - Initial, 30 – 40 every 2 years, and >40 annually, Chest X-ray – at initial Audiogram in a pure tone audiometer – Initial, <40 every 5 years, and >40 every 2 years Blood tests: Hgb and ESR, and Blood sugar – initial Urine tests – Routine and microscopic – Initial, and Albumin and Sugar in each medical examination Additional tests on reaching the age of 40 and there after every five years • Urine, routine and microscopic • Fasting blood sugar • Lipid profile	**Tests required:** Electrocardiogram - Initial and >40 every 2 years Chest X-ray – at initial Audiogram in a pure tone audiometer –Initial and >50 every 2 years Blood tests: Hgb and ESR, and Blood sugar – initial Urine tests – Routine and microscopic – Initial, and Albumin and Sugar in each medical examination Additional tests on reaching the age of 40 and there after every five years • Urine, routine and microscopic • Fasting blood sugar • Lipid profile	**Tests required:** Electrocardiogram - Initial and >40 every 2 years Chest X-ray – at initial Audiogram in a pure tone audiometer – Initial, <40 every 4 years, and >40 every 2 years Blood tests: Hgb and ESR, and Blood sugar – initial Urine tests – Routine and microscopic – Initial, and Albumin and Sugar in each medical examination Additional tests on reaching the age of 50 and there after every five years • Urine, routine and microscopic • Fasting blood sugar • Lipid profile

PART 3 GUIDELINES ON MEDICAL CONDITIONS

Before issuing a license, initial or renewal, the applicant of flight crew or air traffic controller licence is medically examined. If he passes the medical assessment of the required Class as per the standards laid down in Medical Requirements, he will be assessed as Medically Fit and recommended for the issue of the licence. If the applicant is found to have any finding or medical condition that does not clearly meet the medical requirements, he fails the medical assessment and so will not be recommended for issue of licence. This also applies to the licence holder.

Hence the main objectives of the medical examination and assessment are to insure that the applicant or holder is:

1. physically and mentally capable of performing his flying duties in a safe manner. This includes having full use of his faculties i.e. visual ability, hearing, colour perception, balance, muscle sense, etc. and his ability to evaluate the flight conditions and to decide the safe course and act ;
2. free of disease or condition which may suddenly render him incapable of performing his duties in a safe manner during on-going flight (acute incapacitation) or imperceptibly lead to commit or omit actions that may jeopardize safety of the on-going flight (subtle incapacitation); and
3. free of disease which may slowly but within the period of validity of his licence reduce his capacity for performing his duties below the acceptable level.

In borderline or doubtful findings or persistence of residual pathology or reduced function or disability after recovery from illness or operation or accident or any other medical event, he may be considered for recertification. Such cases are usually referred to the specialists who may require additional tests. All medical reports from treating physician should be provided, when applicable. If such specialists are of the opinion that the findings or residual pathology or reduced function or disability is not likely to interfere with the safe operation of the aircraft or with the safe performance of his duties, he may be assessed as medically fit. In such evaluation his relevant ability, skill and experience and operational conditions are also given due consideration. On such accredited medical opinion he may be recommended for issue or renewal of the

licence by Aviation Medical Consultant or Civil Aviation Medical Board. On that licensing may be issued or renewed. In such cases operation 'limitation' or 'restriction' is usually endorsed for the sake of flight safety. They are, in case of flight crew, are as given below:

'Fit to fly as co-pilot only'

'Fit to fly with suitably qualified co-pilot'

'Fit to fly with a safety pilot with dual control in single pilot aircraft'

'Fit to fly solo in cargo or non-revenue passengers flights only'

Later he may be allowed to fly solo or without restriction

There may be other endorsements as use of appliances e.g. glasses, frequent assessments, additional tests, specialist reports, accredited medical opinion, practical flight tests, etc. when the safe performance of the licence holder's duties is dependent on compliance of such endorsements.

In case of Class II and Class III medical assessments, especially for private and recreational flying, less stringent medical standards may be acceptable from the nature of their work and safety concern, though the principle of evaluation will be the same.

If he is to be on medications, those should be from the approved list or should get prior approval from Aviation Medical Consultant or CAMB.

Continuous supervision and follow-up will be important in some cases. It should be the responsibility of Airline doctor or his family physician or even the medical examiner, if he is providing medical care. Hence all airlines are expected to have a Medical Unit or at least a Medical Officer in their establishment, who will be responsible to look after the health and follow up of such flight crew and other personnel of the airline.

Following descriptions include only common conditions in general population, so also in the aviation personnel, These guidelines, though, are meant for all applicants and holders of all classes of medical assessments, are more directed to the flight crew.

These guidelines are given in order to help the Aero-Medical Examiner, Civil Aviation Medical Board to deal with such medical conditions and to have a scientific, sound and uniform practice in assessing the applicant for or holder of licence. On those guidelines appropriate actions and decision will be taken and at the same time trying to retain the applicant or holder without compromising the flight safety. However guidelines are not necessarily final. These guidelines may be modified from time to time on the basis of further knowledge and experience.

3.1 PSYCHIATRIC CONDITIONS

The neuro-psychiatric symptoms varies from mild anxiety symptoms due to day-to-day events and stresses to severe and incapacitating disorders. If there is doubt or suspicion during the medical examination or on verifiable information from an identifiable source, psychiatric evaluation will be required detailing his opinion and recommendation.

3.1.1 Anxiety based disorders (Neurosis): An applicant with the history of anxiety based disorder of significant severity requiring psychotropic medication or admission in hospital or prolonged treatment or recurrence, are normally rejected for all classes of licence.

The licence is suspended or is not issued during the psychiatric illness and while on treatment. But if the illness was not of long duration and the psychotropic drugs were stopped for 6 months or more, he may be considered for issue or recertification on the psychiatrist's accredited medical opinion with restriction as 'to fly as or with suitably qualified co-pilot in the multi-pilot aircraft' or 'to fly with safety pilot with dual control in single pilot aircraft' for 6 months after which he shall be evaluated again.

3.1.2 Sociopathic Personality Disorders: All such cases, if proved, are assessed as unfit for all classes of licence.

3.1.3 Psychotropic Substance/Alcohol Abuse: These reduce performance, slows reaction and impair judgment. The detrimental effect persists even after these substances have been eliminated from blood. There are every chance of recurrence even after stopping them.

Hence history of abuse or effect of abuse of these substances are incompatible for flying. After successful treatment and complete abstinence for six months or more, he may be considered for issue or recertification on the psychiatrist's accredited medical opinion and provided abstinence is secure and three monthly follow-up is maintained. It will be with restriction as 'to fly as or with suitably qualified co-pilot in the multi-pilot aircraft', or 'to fly with safety pilot with dual control in single pilot aircraft. Failing to comply with this or relapse will make him permanently unfit.

3.2 NEUROLOGICAL CONDITIONS

3.2.1 Seizure: Disturbance of consciousness in the flight personnel is usually due to transient cerebral hypoxia following syncope, or more rarely due to cardiac disorder or an epileptic seizure. An epileptic seizure occurring during flight is an unacceptable safety hazard even in the multi-pilot aircraft. It may be a partial seizure and not immediately apparent to the other pilot or a generalized tonic-clonic seizure consequences of which may disrupt the equipment or control. This may be especially hazardous if it occurs during takeoff or landing. Hence it is important to be sure whether it is due to 'faint,' or 'fit i.e. seizure'.

3.2.2 Epilepsy is by definition a recurrent seizure and causes sudden incapacitation. Hence the diagnosis of epilepsy leads to permanent failure in all classes of medical assessment.

Single seizure, if afebrile and unprecipitated, may be assessed as fit for certification after 10 years, provided there is no recurrence, and he is off drugs for five years or more. He will also require normal EEG and MRI of brain and a neurologist's opinion that there is no likelihood of having another seizure. But it will be with restriction as 'to fly as or with suitably qualified co-pilot' in the multi-pilot aircraft or 'with safety pilot with dual control in single pilot aircraft' for one year, after which the restriction may be lifted.

History of **childhood febrile seizure**, occurring before the age of 5 and not associated with neurological deficit, may be considered fit for certification.

Post-traumatic epilepsy is disqualifying.

Abnormal EEG or MRI or recurrence of epilepsy, on the background of previous history of epilepsy will be permanently disqualifying.

Head Injury: Accidents associated with head injuries are common in the modern world.

Head injury with loss of consciousness and focal neurological deficit, depressed skull fracture, cerebral injury or post-traumatic headache will be disqualifying.

There are two major concerns following head injury with loss of consciousness. One is the neuro-psychological consequences of the head injury in the individual though without focal neurological deficits, could be in the form of dysfunction in number of functional executive activities of brain. This is the effect of acceleration/deceleration forces on the skull and the brain causing damage to cortical and diffuse white matter. The other concern is the possibility of seizure. Both are incompatible to flight. The duration of loss of consciousness and length of post-traumatic amnesia both show a good correlation of severity of brain damage and occurrence of epilepsy.

Probability of epilepsy is greater in those with penetrating skull injuries. Even with full physical and neuro-psychological recovery there is an increased probability of seizures for over 10 years. In general, those who develop post-traumatic seizures, 50 % will occur within one year and 70 – 80% within two years. Thereafter the incidence is 3 – 5 % per year upto ten years.

Risk Factors for Late Post-Traumatic Epilepsy	
	Incidence of late seizures (%)
Penetrating injury caused by missiles	53
Intracerebral haematoma – laceration	39
Focal brain damage on early CT scan	32
Early seizure	25
Depressed fracture – torn dura	25
Extradural or subdural haemorrhage	20
Focal signs (hemiplegia, aphasia,..)	15
Depressed skull fracture	15
Loss of consciousness > 24 hours	5
Linear fracture	5
Mild concussion	1
Pagni C.A. Acta Neurochirurgica, Suppl. (1990)	

Recommendation minimum period of grounding on duration of period of post-traumatic amnesia (PTA)	
Duration of PTA	Minimum recommended period
Momentary	Two – six weeks
More than one hour	Two months
More than 12 hours	Four months
More than 24 hours	Six months
More than one week	12 months

Depending upon the initial level of risk if the epilepsy has not occur two years after head injury the reduction of risk may allow a pilot to return to flying without restriction, or as or with a copilot. After five years this restriction can be removed.

Head injury with loss of consciousness and after complete recovery of mental and neurological function may be assessed as 'fit' with or without restriction, after complete neurological examination and appropriate laboratory and imaging studies. However a period of stabilization and Accredited Medical Opinion is required before he is recommended.

3.2.3 Headache: Headache is a common symptom and mostly mild and short lived. But some may be severe and incapacitating, and also chronic or recurring and so hazardous to flight safety.

Migraine: Some migraine presents as frequent attacks of severe headache associated with aura particularly the disturbance of sight, and neurological disturbance, prostration from vomiting, photophobia and occasional loss of consciousness. It shall be assessed as unfit for certification. But some may be considered for recertification and assessed as fit 'to fly as or with suitably qualified co-pilot in the multi-pilot aircraft' or 'with safety pilot with dual control in single pilot aircraft' for one year. If the attacks of headache are of lesser severity and infrequent, and if he is in on treatment and free of headache for more than 6 months. The restriction may be lifted after one year.

Cluster Headache: Chronic cluster headache without remission is assessed as permanently unfit. But if occurs for a limited period followed by long period of remission, he may be certified fit with restriction 'to fly as or with suitably qualified co-pilot in the multi-

pilot aircraft' or 'with safety pilot with dual control in single pilot aircraft' with suspension of licence during relapse.

3.2.4 Neuralgic Pain: Neuralgic attacks of sudden severe pain as in **trigeminal neuralgia and other neuralgias** are distracting and incapacitating and such history are assessed as unfit. But if becomes free of pain spontaneously or after operation or with treatment and remains so for more than six months without treatment, he may be considered for recertification with or without restriction. Neurologist opinion may be required.

3.2.5 Infection: Infection of nervous system can occur sometime in the aviation personnel.

Viral Encephalitis: Generally applicant who has suffered from viral encephalitis would be assessed as permanently unfit, as he often has residual neuropsychological deficit.

Viral Meningitis: Applicant who is neurologically normal two months after viral meningitis, will be assessed as fit in al classes.

Bacterial Meningitis: Applicant who has completely recovered from bacterial meningitis may be assessed as medically fit after one year, provided he is found to be normal on neurological examination, electroencephalogram, and CT scanning and if there is no focal neurological deficit.

Brain Abscess: Applicant who has suffered from brain abscess is assessed as permanently unfit due to increased risk for epilepsy from the scarring that forms round the abscess.

Guilliane Barre Syndrome: Applicant who has made a full recovery from Guiliane Barre Syndrome may be assessed as fit. If he has mild residual weakness, he may be assessed with flight test also.

3.3 CARDIO-VASCULAR CONDITIONS

3.3.1 Hypertension: Hypertension is a common condition in the adult population and cause long term changes, if not controlled, e.g. damage to major organs including heart, brain, kidneys and eyes. Hence they can be cause of incapacitation jeopardizing the safety of flight. Hypertension is a common cause of premature loss of licence.

Blood pressure measurement: Blood pressure measurement will be done both in seated and recumbent positions. The systolic blood pressure shall be recorded at the appearance of the Kortakoff sounds (phase I) and the diastolic blood pressure at their disappearance (phase V). If the blood pressure is raised and the resting heart rate is

rapid, further observation should be made during the medical examination after some rest.

Hypertension will be suspected if blood pressure is recorded 140/90 mm of Hg or more in sitting position after adequate rest. It will be confirmed if it is consistently so on weekly blood pressure examinations for 4 weeks. Hypertension is classified as per new National Heart and Lung and Blood Vessels Institute (NHLBI) Standards (May 2003), as given below:

Condition	Systolic (mm of Hg)	Diastolic (mm of Hg)
Normal	<120	<80
Prehypertension	120 – 139	80 – 89
Stage I Hypertension	140 – 159	90 - 99
Stage II Hypertension	>160	>100

If the readings are above 140/90 mm Hg but below 160/100 mm of Hg i.e. Stage I Hypertension, an ambulatory blood pressure measurement (ABPM) for 24 hours will be done to eliminate the white coat and anxiety induced hypertension.

If 4 blood pressure measurements done at weekly intervals are more than 160/100 mm of Hg i.e. Stage II Hypertension, no ABPM will be required.

24 hours ambulatory blood pressure measurement: It is programmed to record the blood pressure every 30 minutes during the day time and every 60 minutes during night time. The applicant is instructed to keep the arms still during measurements and continue his daily activities other times. He is also to record the activities as well as time of going to bed and time of rising. For analysis more than 14 systolic and diastolic blood pressure records during the day time and at least 7 records at night are mandatory.

Definition of normal blood pressure and hypertension using ABPM is given below:

	Normotension	Hypertension
	(Upper limits by rounding downwards 0-5	(Upper limits by rounding upwards 0-5

	mmHg)	mmHg)
For 24 hours average	130/80 mmHg	>135/85 mmHg
For day time average	135/85 mmHg	>140/90 mmHg
For night time average	120/70 mmHg	>125/75 mmHg

The applicant with hypertension diagnosed for the first time, will require cardiovascular evaluation for medical assessment including risk factors and target organs, and consist of:

- Detailed history including family, personal & social,
- Blood tests – Hb, ESR, urea, creatinine, electrolytes, fasting lipid profile, uric acid and fasting blood sugar
- Urine analysis
- Chest X-Ray
- Electrocardiogram
- Echocardiogram
- Exercise Electrocardiogram Test

The applicant who is diagnosed 'Stage I Hypertension' will be treated initially with non-pharmacological means and monthly blood pressure recording for three to six months maintaining the flight status, and then with approved anti-hypertensive drugs, if necessary.

The applicant diagnosed as 'Stage II Hypertension' will be certified 'unfit temporarily' for flight duty. Meanwhile it will be attempted to control the blood pressure by non-pharmacological means -/+ antihypertensive drugs or anti-hypertensive drug will be adjusted if he is already on treatment. The minimum period of unfit should be 2 weeks from the effective dosage of approved drug or drugs, to watch the adverse effects of these drugs in that dosage. During this period blood pressure will be recorded weekly. After the control of blood pressure, he will be followed up monthly for three months and then 3 monthly, provided blood pressure control is satisfactory.

This should be the responsibility of Airline doctor or his family physician or even the medical examiner, if he is providing medical care. Before certification of medical fitness all the medical reports from treating physician should be provided to the medical examiner and then to the Member Coordinator.

Non-pharmacological means or modification of life style (weight reduction, minimizing alcohol consumption and salt intake, regular exercise,) is the first approach. Cessation of smoking and reduction of saturated fat intake are to be strongly recommended as it reduces the associated cardiovascular risk.

Following classes of drugs have been identified as acceptable in the management of hypertension in aviation personnel. viz. Non-loop Diuretics (Hydrochlorthiazide 25 mg/day, Chlorthalidone, Amiloride, Triamterin, Aldosterone) , Hydrophilic Beta-blockers (Atenolol and metoprolol), Long acting Angiotensin Converting Enzyme (ACE) Inhibitors (Enalapril, Lisinopril), Angiotensin II receptor blockers and Slow Calcium channel blockers (long acting dihydroppyridines viz. amlodipine).

On periodic examination of those controlled on acceptable drugs for renewal of licence, the treating physician will provide the medical report and records of at least 3-monthly blood pressure, and he will have tests as listed above once every two years during medical examination

Stage I Hypertension is certified 'fit' without restriction, except during the initial few weeks of initiation of treatment with anti-hypertensive drugs and he will be observed for any side effects.

Stage II hypertension is certified 'temporarily unfit' until his blood pressure is controlled and the anti-hypertensive drugs cause no adverse effects. Then he will be assessed fit without restriction.

Presence of **complication of hypertension** will make him 'unfit'.

3.3.2 Coronary Artery Disease: Coronary artery disease is common especially in affluent society. The incidence is in the increase in this part of the world. Sudden incapacitation is a dreaded situation during the flight and hence it is the commonest cause of the loss of licence. Not only local lesion of the coronary arteries are important, but risk factors and life style are also equally important and need no addressed.

Proven history or clinical diagnosis of **Myocardial Infarction** with or without symptom and with or without treatment shall be assessed as 'unfit' in both initial and renewal, for all classes of licence. He may be considered for recertification after one year, if there is no significant residual damage of myocardium and no significant stenosis of coronary artery or its branches and according to accredited medical opinion the cardiac condition is unlikely to interfere with the safe exercise of the privilege of his licence. It will be endorsed with restriction for one year to fly as or with a copilot and this restriction may be lifter after one year. Follow-up of annual cardiological review shall be required by a cardiologist, including Exercise ECG +/or Myocardial perfusion scintigraphy. At 5 years repeat coronary arteriogram may be required.

All cases of atypical chest pain or suspected or asymptomatic or symptomatic coronary artery disease will be assessed as 'unfit' and shall undergo detailed cardiovascular evaluation and investigations, and require 'accredited medical opinion'. Case of **angina** +/or Exercise ECG positive for **reversible myocardial ischaemia** will be assessed as unfit for any class of licence. If he was **treated with coronary angioplasty or with coronary artery by-pass graft**, he may be assessed as fit after one year of the procedure after cardiac evaluation and accredited medical opinion that there is no likelihood of becoming suddenly incapacitated which would interfere with the safe operation of aircraft and the safe performance of duties. It will be restricted multicrew operation for one year after which it may be lifted. Follow-up of annual cardiological review shall be required by a cardiologist, including Exercise ECG +/or Radioisotope Myocardial Perfusion Scan. At 5 years full cardiological evaluation and repeat coronary arteriogram may be required.

Exercise Electrocardiography: A standardized protocol such as Bruce treadmill protocol or equivalent should be employed. The subject should be exercised to symptom limitation and be expected to complete at least three stages – nine minutes or 11 METs. The reason for discontinuing the test should be recorded together with the presence or absence of any symptoms.

More than 1 mm ST depression in Exercise ECG will be considered as positive for reversible myocardial ischaemia. The depression should be horizontal or down sloping and lasts

more than 0.08 second duration. There may be disturbance in conduction or/and ventricular or supraventricular extrasystoles.

Failure to achieve increase in blood pressure or occurrence of fall in blood pressure is indicative of extensive ischaemia.

Inability to achieve predicted heart rare target renders the test inconclusive rather than negative.

a. Absence of reversible ischaemia will rule out coronary artery disease.
b. Presence of reversible ischaemia shall have coronary angiogram, and further action will be taken on the findings.

Coronary Angiogram : **Significant stenosis** is defined as coronary artery or its main branches being obstructed more than 30 % and minor branches more than 50 %.

(a) Absence of significant stenosis in any coronary artery or its branches shall be defined as false positive exercise ECG.
(b) Presence of significant stenosis of one or more coronary artery or braches will be disqualifying.

Applicants with **ischaemic damage to the ventricle** such as dyskinesia, hypokinesia or akinesia, ejection fraction <50 and significant abnormality of wall motion shall be assessed as 'unfit'.

3.3.3 Epicardial, myocardial or valvular heart disease: Applicants with epicardial, myocardial or valvular heart disease, with or without symptom, treatment or surgery, shall be assessed as unfit. Applicants without symptom for class II Medical Assessment may be assessed as fit after full cardiological evaluation and accredited medical opinion, if they are not carrying revenue passengers.

3.3.4 Vascular conditions: Applicants with following vascular conditions shall be assessed as unfit, viz.

Significant peripheral arterial disease, before or after surgery,

Aneurysm of thoracic or abdominal aorta, before or after surgery, and

3.3.5 Vaso-vagal syncope: Recurrent vaso-vagal syncope will be assessed as unfit.

3.3.6 Rhythm or Conduction Disturbances: Applicant with rhythm or conduction disturbance needs to be valuated basically to find out (a) what extent of disability it can produce ? and (b) is there underlying heart disease? This may require detailed cardiological evaluation with echocardiography, exercise electrocardiogram, Holter monitoring, etc.

Commonly occurring conditions like **respiratory arrhythmia, occasional uniform atrial or ventricular ectopic complexes** which disappear on exercise, **rapid heart rate** from excitement or exertion, **slow heart rate** not associated with auriculo-ventricular dissociation, may be regarded as being within normal limits.

Supra-ventricular premature beats or ectopics are usually of less importance, but some of them may predispose to supraventricular tachycardia, atrial flutter or atrial fibrillation.

Supraventricular tachycardia may accompany illnesses like Pneumonia or Thyrotoxicosis, in which case the disease itself will disqualify him until he is cured or controlled.

Paroxysmal supraventricular tachycardia cause distraction and in some is incapacitating. Applicants with successful therapy with anti-arrhythmic drugs need not be disqualifying. Ablation therapy should be confirmed to be successful by repeat electrophysiological studies after 3 months. Restriction is applied as to fly in multy crew aircraft or to fly with safety pilot for three months, after which the restriction can be lifted.

Ventricular premature beats in presence of cardiac disease is disqualifying. It is also more likely to be associated with serious ventricular tachycardia and hence disqualifying if they present with one or more of the following characteristics :

(a) Prolonged Q-T interval,
(b) Occurrence in close proximity to the vulnerable period i.e R on T phenomenon,
(c) Occurenc in pairs or regularly couple to the normal QRS complex in bigemminy,
(d) Multifocal origin,
(e) Post-extrasystolic T inversion or post-extrasystolic ST depression, and
(f) Increase in frequency with stress.

It may be assessed as fit with a density of < 200/hour if non-invasive investigations are satisfactory, but multicrew endorsement is usually applied.

Applicants with **broad +/or narrow complex tachycardia** shall be assessed as 'unfit'.

Isolated sinus node dysfunction including sinus Bradycardia, may occur in healthy young people, particularly those engaged in vigorous exercise. Such finding need not disqualify the applicant.

Sinoatrial disease may remain relatively free of symptom for years. Applicant, who is asymptomatic, may be assessed as fit but with restriction to multicrew operation and regular review with exercise electrocardiogram for chronotropic incompetence and Holter monitoring are required. Once symptomatic, he is assessed as permanently unfit.

Atrial fibrillation may be encountered during medical examination. Leaving aside the possibility of other disqualifying conditions which may coexist, the importance of atrial fibrillation is its possibility to cause distraction, subtle incapacitation and the risk of thrombo-embolism. A **single episode** with a defined cause e.g. vomiting, which is self limiting with spontaneous reversion to sinus rhythm eventually get unrestricted flying status, though in the beginning are endorsed with multicrew status. Need for DC conversion does not necessarily imply bad prognosis. Other types of atrial fibrillation are p**aroxysmal or persistant or permanent atrial fibrillation.**. Presence of structural or metabolic abnormality, or of ischaemic, hypertensive or valvular heart disease, or thyrotoxicosis or possibility of alcohol abuse will disqualify him from flying. So lone atrial fibrillation, without any obvious pathology may be assessed as fit with restriction in multicrew operation, if asymptomatic. Permissible medication to reduce the ventricular rate are Digoxin, Beta blockers and Verpamil.

Fist degree or second degree (Type I) should be investigated to rule out heart disease and to determine the risk of complete heart block. This can be seen during rest, particularly sleep, in young adults who engage in vigorous exercise, and so they are assessed as fit without restriction.

Bundle branch block: Isolated bundle branch block and left hemiblocks, which are long standing are generally benign. Applicants with **complete right or left bundle branch block** require cardiological evaluation on first presentation.

3.3.7 Congenital heart diseases: Sometimes applicant with congenital heart disease may apply for initial or renewal of the licence. The condition may be known earlier or maybe detected for the first time.

Small or early (<24 years) **corrected secundum atrial septal defect** is compatible with unrestricted flying subject to regular review, but departure from this requirement implies restricted flying or denial.

Small ventricular defect may be assessed as fit as it tends close spontaneously or remain stable. Closure in childhood likewise carries a good outcome.

Coarctation of aorta: Applicant who had undergone surgical correction after the age of 12 is assessed as unfit due to increased risk of sudden death and incapacitation due to cerebrovascular accident. Applicant who had undergone successful correction before the age of 12 may be certified fit.

3.3.8 Innocent murmurs: Murmurs not necessarily means a valvular heart disease. If it is diagnosed to be innocent murmurs, he can be given unrestricted flying status. He may need cardiologist confirmation with non-invasive tests.

3.3.9 ECG Findings: They are listed below in different categories

ECG Findings

- Normal Tracing - Fit
- Normal Variant - Fit
- Borderline – Requires evaluation
- Abnormal Tracing – - Unfit straightway or after evaluation

Normal Variants

Require no further evaluation

- Isolated Sinus Tachycardia
- Sinus Bradycardia
- Sinus Arrest – less than 2 seconds in duration
- Sinus Arrhyrthmia
- Wandering Supraventricular Pacemaker
- Nodal Rhythm
- Sinus Rhythm (Atrial Rhythm)
- Atrial Premature Extrasystole(s)
- Nodal Premature Extrasystole(s)
- Nodal Escape Beat
- Atrial Escape Beat
- Premature Ventricular Contraction, Unifocal, less than 30
- Ventricular Escape Beat
- Interpolated Extrasystoles
- Ventricular Bigeminy, Trigeminy, less than 30
- Ventricular Parasystole, less than 30
- Terminal Intraventricular Conduction Defect
- Unclassified Intraventricular Conduction Defect
- Nonspecific ST elevation (Early Repolarization)
- Post-extrasystolic T Wave Changes
- PVC's (Unifocal) after Exercise
- PVC's (Unifocal) during Exercise
- S_1, S_2 or S_1, S_2, S_3 Pattern
- Right Bundle Branch Block (RBBB) – in absence of organic disease

Borderline i.e. Possibly Significant Abnormal Tracing, requires further evaluation

- Sinus Tachycardia – if persistent and present during basal resting state
  – Med Eval, Cardiac enzymes, T3, T4 & TSH, Echocardiogram, TMT & Holter
- Paroxysmal Atrial or Nodal Tachycardia, Atrial Flutter or Atrial Fibrillation precipitated by well–documented unusual circumstances

- Med Eval, Cardiac enzymes, T3, T4 & TSH, Echocardiogram, TMT & Holter

- First Degree A-V Block (>0.20 sec)
  - Med Eval, Echocardiogram, MT & Holter
- Wenckeback (Type I A-V Block)
  - Med Eval, Echocardiogram, TMT & Holter
- A-V Dissociation
  - Med Eval, Echocardiogram, TMT & Holter
- Low Amplitude T Wave or Non-specific T wave Changes (in fasting condition)
  - Med Eval, Echocardiogram, TMT & Holter
- Non-specific ST Depression (in fasting condition)
  - Med Eval, Echocardiogram, TMT & Holter
- Abnormal TMT (1.0 mm or greater ST depression, horizontal or down sloping, of more than .08 sec duration
  - Med Eval, Echocardiogram, Holter, Thallium Scan, Coronary Amgiogram may be required
- Poor R wave Progression
  - Med Eval, Echocardiogram, TMT & Holter
- PVC's (for the first time, over 30 years old) including Bigeminy, Trigeminy & Parasystole
  - Med Eval, Echocardiogram, TMT & Holter
- Right Bundle Branch Block (RBBB) (new appearance)
  - Med Eval, Echocardiogram, TMT & Holter
- Left Bundle Branch Block (LBBB) –
  - Med Eval, Echocardiogram, TMT & Holter
- Wolff-Parkinson-White Syndrome (WPW)
  - Med Eval, Echocardiogram, TMT & Holter
- Lown-Genang-Levine Syndrome (LGL)
  - Med Eval, Echocardiogram, TMT & Holter
- Left Axis Deviation (LAD) (> -30^0)
  - Med Eval, Echocardiogram, TMT & Holter
- Right Axis Deviation (RAD) (>120^0)
  - Med Eval, Echocardiogram, TMT & Holter

- Pericarditis – repeat after 6 months

Definitely Significant Abnormal

- Disqualifying for all classes.
- Usually do not require further evaluation
- Serious enough to warrant complete medical evaluation
- If found in personnel already on flying duty, ground him

- Sinus arrest – occurring spontaneously for a period of 2 seconds or more or when associated with symptom
- Paroxysmal atrial or nodal tachycardia, atrial flutter, or atrial fibrillation, unless it is an isolated occurrence precipitated by well- documented unusual circumstances, e.g. excessive fatigue, infection, ingestion of medicine, alcohol or toxic agent, not associated with WPW
- Idioventricular rhythm
- Ventricular tachycardia – 3 or more successive ventricular contractions
- Paired PVC's
- Ventricular fibrillations
- Multifocal PVC's
- Second Degree A-V Block (Mobitz type II)
- Complete (third degree) A-V block
- Evidence of Myocardial ischaemia or damage, especially as a serial change
- Evidence of Myocarditis, Endocarditis
- WPW when associated with an episode of a tachyarrhythmia or suggestive of history of same
- LGL
- LBBB, in Class I Flying personnel
- Any other ECG abnormality, indicative or significantly altered cardiac function, not mentioned above.

Medical Evaluation:

- History & evaluation preferably by a Cardiologist

- Laboratory investigations (CBC, ESR, urine R & M, Renal profile, Bl sugar F & PP, BUA, Lipid profile, Thyroid function tests)
- X rays – Chest PA & Lateral views
- Other tests may be required depending upon the case

Cardiac Investigations:

- ECG - ECG at resting and fasting state
- Echocardiogram
- Exercise ECG
- Ambulatory ECG
- Radioisotope Myocardial Perfusion Scan
- Stress Echocardiogram
- Coronary Angiogram
- Any other investigations deemed necessary

3.4 RESPIRATORY CONDITIONS

Respiratory diseases are the commonest cause of morbidity and loss of time of work in general population. The disease, not so symptomatic on the ground, may cause problem and incapacitation due to aviation environment.

3.4.1 Bronchial Asthma: An applicant with **recent attack** of bronchial asthma shall be assessed as 'unfit for initial issue of licence. **Recurrent attacks** shall be assessed as 'unfit for renewal of licence. He may be considered for certification only after being free from attack for 5 continuous years. History of **childhood asthma** alone is not disqualifying.

3.4.2 Chronic obstructive airway disease requiring continuous medications shall be assessed as unfit. The individual assessment is made on the basis of severity of disease, type and amount of medication required, full history, pulmonary function test. Treating physician or chest physician's report is usually required.

3.4.3 Pneumonia: Unfit until fully recovered.

3.4.4 Pulmonary Tuberculosis: Applicant or holder will be assessed as unfit during active tuberculosis and in the initial phase of treatment at least for two months. Once the patient becomes asymptomatic and there is marked clearing in the chest X ray, he may be assessed as 'fit' with restriction as only in multi-pilot aircraft while he is on treatment.

3.4.5 Tubercular Pleural effusion, as in Pulmonary tuberculosis.

3.4.6 Spontaneous Pneumothorax: It happens suddenly and can cause severe pain or breathlessness. Open pleurectomy is recommended following a single event and flying duties can be resumed after 3 months after pleurectomy. Otherwise it can be considered for recertification only after 18 months. **Recurrent spontaneous pneumothorax** are grounded permanently if pleurectomy is not done. Investigation to exclude lung disease is required.

3.4.7 Pyothorax: If completely healed after medical +/or surgical treatment, he may be considered for certification after 6 months. If pulmonary functions are satisfactory, he may be assessed as fit with multi crew restriction. After one year the restriction may be lifted.

3.5 GASTRO-INTESTINAL CONDITIONS

Digestive complaints or conditions are common in population. These can distract or even incapacitate though most of them are just a nuisance during the flight.

3.5.1 Gastro-oesophageal reflux disease: If troublesome and symptomatic, it will be assessed as unfit. It will be assessed as fit after symptom are abated with or without acid suppressing treatment with or without restriction.

3.5.2 Gastric or Duodenal Ulcer: Active ulcer confirmed on endoscopy are assessed as unfit Before being assessed as 'fit' ulcer must have healed completely endoscopically.

Continued treatment with acid suppressing agents are allowed, if no side effects are produced.

3.5.3 Complications of ulcer e.g. haemorrhage or perforation: He is assessed as unfit for six months. After treatment and if asymptomatic, he may be assessed as fit after re-endoscopic confirmation. Continued treatment with acid suppressing agents are not disqualifying. It may be endorsed with restricted flying in multicrew operations for six months.

3.5.4. Chronic Inflammatory Bowel Disease: Applicant with chronic inflammatory bowel disease shall be assessed as unfit.

3.5.5 Cholelithiasis / Cholecystitis: Symptomatic cholelithiasis will be assessed as unfit and will be assessed as fit only after cholecystectomy and full recovery. Asymptomatic incidental finding of a large solitary gall stone may be assessed as fit. Acute Cholecystitis are certified unfit and will certified fit after symptom is controlled after treatment.

3.5.6 Hernia: Significant hernias are disqualifying until they are repaired.

3.6 GENITO-URINARY CONDITIONS

3.6.1 Haematuria: An initial applicant with haematuria should be investigated before final assessment is given. Others who are found to have isolated microscopic haematuria during routine medical examination, may be assessed fit while further investigations are carried out. In case of frank haematuria, licence is suspended or medical assessment result is withheld until the investigations are completed.

3.6.2 Proteinuria: Trace protein result can occur in as little as 50 mg of protein in a litre of urine and 1+ at about 300 mg in a litre of urine. On finding 1+ proteinuria, one should get 24 hours excretion of protein in urine. An applicant for initial licence with proteinuria should be investigated before final assessment is given. Applicants for renewal and licence holders with isolated mild proteinuria (<1 gm in 24 hours may

continue to fly) whilst awaiting investigations may be allowed full flying duties without restrictions. If Significant proteinuria (>1 gm in 24 hours) is found, medical licence result is withheld or licence suspended pending the results of investigations. If associated with haematuria, hypertension, renal impairment or signs of systemic disease, he should be assessed as unfit. If proteinuria is isolated finding, he may be assessed as fit with restricted multicrew operations, provided that he is carefully followed up at a minimum of six monthly intervals.

3.6.3 Urolithiasis: Urolithiasis or stone in the urinary tract is a common condition in the general population. The concern is the sudden incapacitation due to colic that it can produce. Once the applicant or holder is suspected of or diagnosed urolithiasis, further urological evaluation is mandatory. The stone may pass per urethra or removed by extracorporeal shockwave lithotripsy (ESWL) or operation, but it can recur in course of time. Hence follow up is important.

Urological evaluation are , as follows:

Full history including family history

Urine examination - routine and microscopic examination

Blood examination – urea, creatinine, electrolytes, calcium, uric acid

Intravenous urogram (IVU)

Ultrasound of abdomen and pelvis

Biochemical tests

Other tests as deemed necessary

Asymptomatic stone: Any stone in urinary tract, even without symptom will require further evaluation.

- If it is lying in the parenchyma and causes no obstruction, he may be certified fit without restriction.
- If it is lying in collecting system with or without obstruction, his licence is suspended until the stone is cleared. Ultrasound of abdomen and pelvis will be required in every medical assessment.

Symptomatic Stone: If the stone is causing colic pain, his licence is suspended until the stone is cleared.

Recurrent Stone: It is important to follow up closely for recurrence of stone by means of ultrasound in each medical examination.

3.7 METABOLIC, NUTRITIONAL AND ENDOCRINAL CONDITIONS

3.7.1 Obesity : Gross obesity, BMI of more than 40, will be assessed as unfit for all classes of medical assessments. **Obesity,** BMI more than 30, in an applicant will require further evaluation especially for risk factors of cardiovascular diseases and obesity-associated health problems, before he is assessed as fit. He also may required to be tested in the aircraft and cockpit about his movement and activities to operate the aircraft.

3.7.2 Serum lipids abnormality: Serum lipids estimation (serum cholesterol, triglyceride, HDL & LDL): The concern with disturbance of lipid metabolism is accelerated atherogenesis and so potential increase in the risk of sudden cardio-vascular incapacitation in the aviation personnel.

The serum lipids estimation is to be done in the fasting stage. All the lipid components are to be maintained within normal limits. It is even more important in presence of hypertension and /or coronary artery disease and family history. In such cases and in presence of other risk factors, it is to be maintained at further lower level, which are to be controlled by life style modification e.g. reduction in alcohol, cessation of smoking, and increased exercise. If lipids do not come down to satisfactory level in two periods of 3 months on non-pharmacological means, Statin medication are to be started.

On the start of medication the license holder shall not be allowed to exercise the privilege of his licence to insure that it has not caused significant side effects. During renewal lipid profiles will be required. Lipid profile abnormality alone will not downgrade his medical fitness.

3.7.3 Diabetes: Diabetes mellitus is a common condition in the population and half of them remain undiagnosed and the incidence is on the rise in this part of the world. So it is also found in the aviation personnel. The problems in the aviation could be from diabetes as well as from its associated complications e.g. marked increase in coronary artery disease, visual problems and nephropathy. The other problem is from the treatment causing hypoglycaemia which can be severe and sudden or mild and subtle. Both are serious hazards to flight safety.

Glycosuria found at 'Medical Examination' or at any other time requires that the license be suspended until full investigation has been undertaken.

Should a diagnosis of **Impaired glucose tolerance (IGT) or Diabetes** be made, the license must remain suspended until stable control is achieved from diet +/- approved oral antidiabetic agents and maintained for three consecutive months.

Typical symptoms of diabetes mellitus are weight loss, polyuria and polydypsia. Finding of glycosuria and an elevated blood sugar are diagnostic. However, the difficulty arises from mild glycosuria and subsequent abnormal blood glucose levels are found in a symptomless applicant during routine medical examination. Abnormal blood glucose requires glucose tolerance testing.

Diabetes may be controlled on diet alone or oral antidiabetic agents or insulin may be required depending on the type and severity of diabetes.

Should **diabetes control be obtained satisfactorily by modification of diet** alone, all classes of license are restored.

Diabetes controlled by oral anti-diabetic agents like sulphonylureas, Metformin or Acarbose, will be assessed as fit.

Once diagnosed as impaired glucose tolerance or diabetic he should be on regular follow up under a diabetologist or physician and should provide the report from him during the medical examination. All cases of impaired glucose tolerance or diabetes on control with diet or

approved oral antidiabetic agents for consecutive three months will be endorsed with restriction to multicrew aircraft for one year, and then after restriction will be removed if maintained on satisfactory control. Continued licence will necessitate regular medical monitoring and maintenance of satisfactory blood sugar level, freedom from ketonuria and glycosuria and that cardiovascular, neurological, renal and ophthalmological states remain normal. In medical examination for renewal of licence, he will have urine routine and microscopic examination, 2 hours blood sugar after glucose load and Glycosylated haemoglobin, which should be in acceptable limit. He also should provide a report from his doctor. Once a year they will have Exercise ECG test and fundoscopic examination after pupil dilatation.

Failure of control of diabetes will suspend the licence. Frequent failure to maintain the control of diabetes may be assessed as unfit permanently.

Should **diabetes control** be obtained **by the use of or insulin,** he will be assessed as 'unfit.'

Diabetes with overt complication, though under control, will be assessed as permanently unfit.

Glucose Tolerance Test: 75 G of glucose loading in a minimum of 250 ml of water is given to a fasting subject who has eaten a normal diet containing not less than 250 G of carbohydrate for the previous few days. Normal activities during those three days and rest for half an hour before test. No further activities until the test is completed.

No smoking in the morning and during the test. Test is to be done before 10 AM, preferably.

	Fasting	**2 hours post glucose load**
Normal	<120 mg/100ml <6.7 mmol/	<120 mg/100ml 6.7 mmol/l
Impaired glucose tolerance	<120 mg/100ml <6.7 mmol/l	120 – 180 mg/100ml 6.7- 10.0 mmol/
Diabetes mellitus	>120 mg/100ml >6.7 mmol/l	>180 mg/100ml > 10.0 mmol/l

3.7.4 Thyroid Disorder: Both hyper- and hypo-thyroidism are incompatible with safe performance of duties and continued licensing.

Hyperthyroidism: Once diagnosed and confirmed by thyroid function tests, his licence will be suspended and he will be given appropriate treatment (medical or radio-active iodine or surgical) under the care of an endocrinologist or physician. After maintenance of euthyroid state including normal thyroid function tests for sufficient length of time i.e. not less than 3 months and with good range of eye movements and no diplopia, he will be assessed as medically fit with restriction to operate in multi crew aircrafts for one year and subsequently the restriction will be lifted. The licence will, however, be dependent upon continuing periodic review with thyroid function tests and a medical report of the treating physician throughout the flying career.

Hypothyroidism: Similarly on being diagnosed and confirmed by thyroid function tests, his licence will be suspended. He will be given Thyroxine under the care of an endocrinologist or physician. After maintenance of euthyroid state including normal thyroid function tests for sufficient length of time i.e. not less than 3 months, he will be assessed as medically fit with restriction to operate in multi crew aircrafts for one year and subsequently the restriction will be lifted. The licence will, however, be dependent upon continuing periodic review with thyroid function tests and a medical report of the treating physician throughout the flying career,

3.7.5 Pregnancy: Though pregnancy is a normal physiological process, it causes major anatomical and physiological disturbances and stress in the system which are associated with increase in incapacitation.

During the first trimester the chances of abortion are there, and till 20 weeks of pregnancy bleeding per vagina and crampy abdominal pain can occur. Pregnancy is to be confirmed as early as possible and thenafter she should have regular anti-natal care. After 26 weeks there can occur gastro-intestinal disturbances due to hormonal change and anatomical displacement. Even fetal movement in the womb can be discomforting and distracting. Hence she should be under monthly obstetrical assessment and only after the clearance from that assessment she should be allowed to continue to privilege of the licence.

She also should be able to consider disqualified herself in presence any discomfort or symptom. They are faintness, dizziness or vertigo, nausea or vomiting, anaemia (Hgb <10 G %), glycosuria or proteinuria, urinary tract infection, vaginal bleeding, abdominal pain, high blood pressure, etc.

In general, it is advisable to suspend the licence in **the first trimester and after 26 weeks of pregnancy.** Obstetrician's report is necessary.

The flight crew should be informed of the hazards of low pressure and radiation to the fetus during flight.

4 – 6 weeks after **confinement or termination of pregnancy**, she should have medical examination and assessment to confirm involution has taken place before she resumes her duties.

3.8 MUSCULO-SKELETAL CONDITIONS

Musculo-system is concerned for stability, power, movement and activities. Any significant deficiency can be a threat to flight safety. If any doubt exists, he should be tested in actual aircraft during access and exit, in use of controls during flight, and in emergencies and evacuation under the instructor.

3.8.1 Upper Limb: Good range of joints movement, power and dexterity of upper limbs are required in the flight crew in order that aircraft controls, which are positioned not only in front of but also to the side of, and above the seat, can be reached and used.

Injury of the upper limbs are common in the young age due to accidents and sport activities. Traumatic dislocation of **shoulder joint or gleno-humeral joint** in a crew will disqualify him from flying. Only after 8 - 10 weeks of reduction and rehabilitation and full activities he may return to full flight status. In theses cases recurrent dislocation can often follow. In that case only after surgical repair and full recovery of function he may be assessed as fit initially with restricted operation in multicrew aircrafts and

later cleared for solo flights. **Clavicular** fracture**,** disruption of **acromio-clavicular joint, and rotator cuff** injury also ground him temporarily.

Elbow movements, functionally speaking are complimentary to those of shoulder complex and therefore some reduction of elbow flexion and extension in acceptable. But restriction of **forearm** rotation, whether it is as a result of **elbow** condition, malunion of old **forearm** fracture or disruption of **radio-ulnar joint** is unacceptable.

Ability to perform three basic types of activity of grasping, pinching and hooking are fundamental to normal hand function. These three movements with normal coetaneous sensibility are essential for the safe manipulation of aircraft controls. Limitation of **movement of the joints, painful condition, weakness and lack of sensation** due to nerve lesion will suspend the licence. Freedom of symptoms at least for six months is required before it is considered for assessment regarding fitness for flight duty

3.8.2 Lower Limb: Adequate lower limb function e.g. stability, power and adequate range of movement, is essential for access and exit of the aircraft and safety in flight. Limitation of flexion in **hip joint** to less than 90 degrees from neutral position from any cause is considered hazardous. Similarly painless range of movement of **knee** of at least 90 degrees of flexion from fully extended position is required. Almost full range of painless and stable movements of **jankle and subtalar joints** are required for the safe control of the aircraft. Presence of unbalanced paralysis or weakness and **footdrop** as a result of the first sacral root involvement due to disc prolapse, can result in an inability to control aircraft safely

3.8.3 Thoraco-lumar Spines: **Low back ache** are common symptom in young age group and more so in helicopter pilots. When they have symptom, they should be grounded until they become symptom free. Lumbar **disc lesions** are common and can be disabling. Those with sciatica due to **disc prolapse** may have to undergo surgical treatment. Lesser degree of **slip disc**, grade I and those who had single level spine fusion to control the symptom are considered fit for unrestricted flying role. Higher grades of slip disc are usually disqualifying as they are associated with higher incidence of neurological abnormalities.

3.9 EAR, NOSE & THROAT CONDITIONS

Drum Perforation: A single dry perforation is acceptable. An acute perforation will result in being unfit until hearing and tympanic membrane recovers.

Otitis media: Unfit until fully recovered.

Sinusitis: Unfit until fully recovered

Vertigo: Vertigo or giddiness is a common experience to many and usually it is transient and of no consequence. Persisting and recurring vertigo in incompatible to safe flying. Recurrent vertigo due to **paroxysmal vestibular disorde**r and **benign positional vertigo** is assessed as permanently unfit as it is recurring symptom. But in case of acute vestibular disturbance where the cause is thought to be due to a **transient disorder of the peripheral labyrinth** with full recovery with normal neurological assessment, he may be certified fit without restriction. **Meniere's Disease** is disqualifying, but the diagnosis must be confirmed.

Monoaural hearing or loss of hearing in one year is disqualifying in all classes of licence.

Hearing Aid is not acceptable in all classes of licence.

Post-Surgical conditions: Though chronic or sequelae of the diseases of the ear are disqualifying, after surgical treatment he may be considered if he has regained the function and is observed for certain length of time. Applicant with **simple myringotomy** will be assessed as fit for all classes without restriction after one month of observation, if the middle ear is dry, tympanic membrane healthy, and hearing is normal and there is no vertigo. After **simple mastoidectomy** he may be assessed as fit if the ear examination including hearing is normal and wound is healed. **Tympanoplasty** done for closure perforation of ear drum also improves the hearing. If the hearing is satisfactorily recovered and ear drum is intact and healthy, he may be assessed as fit without restriction in all class of licence after one month. **Otosclesrosis** is a common cause of conductive deafness in adults. But after ear surgery viz. **Fenestration operation, Stapes immobilization operation, Stapedectomy with prosthesis implantation**, he may be considered for recertification if specialized ENT examination after three months of operation finds satisfactory hearing, patent eustachian tube, no vertigo, no nystagmus and unsteadiness on Valsalva manoeuvre or

forceful nose blowing. It will be restricted to fly as or with another co-pilot or safety pilot for two years observation period. After that period the restriction may be removed.

3.10 EYE CONDITIONS

3.10.1 Poor vision: The applicant having poor vision, worse than 6/60 unaided, can get vision to 6/9 in each eye with high refractory error correction may be considered for recertification. They should wear either contact lens or high-index spectacle lenses.

3.10.2 Diseases of eye and adnexa cause visual or distracting ocular symptoms which in flight crew pose flight safety issues. The presence of active disease of eyes or adnexa will be assessed as unfit temporarily or suspend the licence until the condition has been cured or stabilized and is deemed unlikely to be a safety hazard or recur. He may be assessed as fit initially in dual pilot category.

3.10.3 Cataract: A stationary cataract, or lens opacity, either congenital or acquired, if it does not interfere with the vision, may be assessed as fit in trained flight crew and need not impose restrictions. The **cataract** which interferes with the vision, or presenile cataract, idiopathic or acquired, requires temporary grounding and ophthalmic intervention. Ppseudophakia (intra-ocular lens implanted) is certified fit provided all visual requirements are me, with or without correction, after three months of surgery and refraction had remained stable on two occasions at the interval not earlier than three months.

3.10.4 Symptomless heterophoria is considered no bar for flying status depending on the magnitude of deviation and degree of control, but **manifest squint or heterotropia** are assessed as unfit for flying.

3.10.5 One eye or monocular vision: A flight crew with **one eye or monocular vision** is assessed as unfit.

3.10.6 Corneal and refractory surgery: Applicant with **corneal and refractory surgery** will be assessed as fit only if following conditions are met during each medical examination.

- All the eye drops should have be withdrawn not less than six months.
- Visual acuity shall meet the required standards.
- Refraction and visual acuity must remain stable on two consecutive measurements at the difference of three months, six months after surgery.

There should be no ongoing treatment of the eyes.

ATTACHMENT 1

CIVIL AVIATION AUTHORITY OF BANGLADESH

APPLICATION FORM FOR AN AVIATION MEDICAL CERTIFICATE

Complete this page fully using using a black ball point pen and in block capitals – Refer to instructions pages for details **MEDICAL IN CONFIDENCE**

(1) Full Name of the applicant		(2) ID No	(3) Father's Name
(4)Mother's names:	(5) Date of birth: Age:	(6) Sex Male □ Female □	(7) Application Initial □ Renewal □
(8) State of licence issue:	(9) Class of medical certificate applied for 1 □ 2 □ 3 □ Others □		(10) Type of licence applied for:
(11) Place and country of birth:	(12) Nationality:		(13) Occupation (Principal)
(14) Permanent address: Postcode: Country: Telephone No: Mobile No: E-mail: @	(15) Postal address (if different) Postcode: Country: Telephone No:		(16) Employer (17) Last medical examination Date: Place: (18) Aviation licence(s) held (type) Licence number: State of issue:
(19) General Practitioner Name: Address: Tel No:		(20) Any limitation on Licence/Medical Certificate No □ Yes □ Details:	
(21) Have you ever had an aviation medical certificate denied, suspended or revoked by any licensing authority? If yes, discuss with medical examiner No □ Yes □ Date: Place: Details:		(22) Total flight time hours:	(23) Flight time hours since last medical: (24) Aircraft presently flown
(25) Any aircraft accident or reported incident since last medical? No □ Yes □ Date: Place: Details		(26) Type of flying intended: (27) Present flying activity Single pilot □ Multi pilot □	
(28) Do you drink alcohol No □ Yes □ If YES, state average weekly intake in units:		(30) Do you currently use any medication? Yes □ No □ If YES, state drug, dose, date started and why	
(29) Do you smoke tobacco? Never □ Previously □ Date stopped: Currently □ State type, amount & number of years:			

General and medical history: Do you have, or have you ever had, any of the following? YES or NO (or as indicated) must be ticked after each question. Elaborate YES answer in the remarks section.

	Yes	No		Yes	No
101 Eye trouble/eye operation			124 A positive HIV test		
102 Spectacles and/or contact lenses ever worn			125Sexually transmitted disease/Any past illness		
103 Spectacles/contact lens prescriptions/change since last medical exam			126 Admission to hospital		
104 Hay fever, other allergy			127 Any other illness or injury		
105 Asthma, lung disease			128 Visit to medical practitioner since last medical examination		
106 Heart or vascular trouble			129 Refusal of life insurance		
107 High or low blood pressure			130 Refusal of flying licence		
108 Kidney stone or blood in the urine			132 Medical rejection from or for military service		
109 Diabetes, hormone disorder			133 Award of pension or compensation for injury or illness		
110 Stomach, liver or intestinal disorded			170 Family history of Heart disease		
111 Deafness, ear disorder			171 Family history of High blood pressure		
112 Nose, throat or speech disorder			172 Family history of High cholesterol level		
113 Head injury or concussion			173 Family history of Epilepsy		
114 Frequent or severe headaches			174 Family history of Mental illness		
115 Dizziness or fainting spells			175 Family history of Diabetes		
116 Unconsciousness for any reason			176 Family history of Tuberculosis		
117 Neurological disorder; stroke, epilepsy, seizure, paralysis, etc.			177 Family history of Allergy/asthma/eczema		

118 Psychological/psychiatric trouble of any sort			178 Family history of Inherited disorders		
119 Alcohol/drug/substance abuse			179 Family history of Glaucoma		
120 Attempted suicide			150 For Females only. Any Gynaecological or menstrual disorders		
121 Motion sickness requiring medication			151 For Females only. Are you pregnant?		
122 Anaemia/Sickle cell trait/other blood disorder					
Do you fly with a student pilot?					
Remarks: If previously reported and no change since, so state.					

Declaration: I hereby declare that I have carefully considered the statements made above and that to the best of my belief they are complete and correct and that I have not withheld any relevant information or made any misleading statement. I understand that if I have made any false or misleading statement in connection with this application, or fail to release the supporting medical information, the Authority may refuse to grant me a medical certificate or may withdraw any Medical Assessment granted, without prejudice to any other legal action applicable pursuant to.

CONSENT TO RELEASE OF MEDICAL INFORMATION: I hereby give my consent that all relevant medical information may be released and submitted to the Medical Assessor Office of the CAAB.

Note: Medical confidentiality will be respected at all times.

…… ……..…… …….

Date Signature of applicant Signature of medical examiner

ATTACHMENT 2

CIVIL AVIATION AUTHORITY OF BANGLADESH

MEDICAL EXAMINATION REPORT **MEDICAL IN CONFIDENCE**

Reference/Licence number:	Full Name of the applicant: Father's Name: Mother's Name: Postal address: Permanent address: Telephone No: Mobile No: E-mail:

Examination Category	Height	Weight	Eye	Hair	BP		Pulse	
Initial □ Renewal □ Special Referral □	(cm)	(kg)			Sys	Di	Rat	Rhythm

Clinical examination: Check each item

	Normal	Abnormal		Normal	Abnormal
Head, face, neck, scalp			Abdomen, hernia, liver, spleen		
Mouth, throat ,teeth			Anus, rectum		
Nose, sinuses			Genito-urinary system		
Ears, drums, eardrum mobility			Endocrine system		
Eyes – Orbit and adnexa; visual field			Upper and lower limbs, joints		
Eyes – pupils and optic fundi			Spine and other musculoskeletal		
Eyes – Ocular motility; nystagmus			Neurologic – reflexes, etc		

Lungs, chest, breasts			Psychiatric		
Heart			Skin, and lymphatics		
Vascular system			General systemic		
Notes: Describe every abnormal finding. Enter applicable item number before each comment.				Identifying marks, scar etc	

V**isual accuity**

Distant vision at 6 m

	Uncorrected		Glasses	Contact lenses
Right Eye		Corrected to		
Left eye		Corrected to		
Both eyes		Corrected to		

Intermediate vision N 14 at 100 cm

	Yes	No	Yes	No
Right eye				
Left eye				
Both Eyes				

(231) Near vision

	Uncorrected		Corrected	
N 5 at 20 -50 cm	Yes	No	Yes	No
Right eye				
Left eye				

Glasses: _____ Contact lenses _____.

Yes □ No □ Type Yes □ No □

Type

Colour perception Normal □ Abnormal □

Pseudo-isochromatic plates Type:
No of plates: No of errors

Hearing (when 241Audiometry is not performed)

	Right ear	Left ear
Conversational voice test at 2 m back turned to examiner	Yes □ No □	Yes □ No □

Hearing (when Audiometry is performed)

Audiometry				
Hz	500	1000	2000	3000
Right				
Left				

Urine analysis Normal □ Abnormal □

Glucose	Protein	Blood	Other
Present □ Absent □	Present □ Absent □	Present □ Absent □	

Accompanying reports	Normal	Abnormal/Comment
(238) ECG		
(239) Audiogram		
(246) Other		

(247) **Aviation medical examiner's recommendation:**

Name of applicant:_____ Date of birth:_____

□ Fit class _____

□ Unfit class _____ **State reason for unfitness**

□ Deferred for further evaluation. If yes, why and to whom?

Medical Examiner's signature _____, Applicant's Signature

(248) **Comments, restrictions, limitations:**

Aviation Medical Examiner's Declaration:

I hereby certify that I have personally examined the applicant named on this medical examination report and that this report with any attachment embodies my findings completely and correctly.

Place and date:	Examiner's Name and Address: (Block Capitals)	Examiner's Stamp:
Medical Examiner's signature	E-mail Telephone No: Mobile No:	

ATTACHMENT 3

CIVIL AVIATION AUTHORITY OF BANGLADESH
MEDICAL CERTIFICATE

I, the undersigned certify that Mr/Ms _____

born at _____ on _____ Nationality _____

has undergone medical examination at _____ on_____.

He meets the standard for CLASS-_____Medical Certificate and is medically

FIT/UNFIT for the purpose of

Renewal of _____**(Licence No.)** and this medical fitness is

valid upto : _____.

Address of holder:

Remarks / limitations (if any):

Examiner's Stamp:
Place and date:

Medical Examiner's signature

Medical Examiner's Name and Address: (Block Capitals)
E-mail
Telephone No:
Mobile No:

Signature of holder: