



**CAA TECHNICAL EXAMINATIONS  
(PERSONNEL LICENSES, RATINGS & CERTIFICATES)**

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**AIR NAVIGATION ORDER**

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OFFICE OF PRIME INTEREST : Personnel Licensing Directorate

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**A. AUTHORITY:**

A1. This Air Navigation Order (ANO) is issued by the Director General Civil Aviation Authority in pursuance of powers vested in him under Rule 4(3), 36, 39, 45, 46, 47, 48, 354, 357, 360 and all other enabling provisions of Civil Aviation Rules, 1994 (CARs, 94).

**B. PURPOSE:**

B1. In order to ascertain whether an applicant has the required knowledge associated with the issuance of a License, rating or certificate, Pakistan CAA conducts a number of examinations. The purpose of this ANO is to notify the knowledge requirements for various examinations associated with the issuance / revalidation / renewal of licenses, ratings and certificates issued by Personnel Licensing Directorate, CAA. It also provides regulatory framework and mechanism for the conduct of those CAA Technical Examinations for the issuance of personnel Licenses, ratings and competency certificates which are conducted by Pakistan CAA.

**C. SCOPE:**

C1. This ANO covers the rules and procedures governing the CAA Technical Examinations for issuance of Licenses, ratings and certificates for all aviation personnel except for issuance of Private Pilot / Commercial Pilot / Multi-crew Pilot / Airline Transport Pilot Licence which has been outsourced to an exam service provider and framework is provided in ANO-033-LCXX. The applicant for issuance of Aircraft Maintenance Engineer Licence shall also refer to ANO-066-LCXX / ANO-147-AWRG and relevant airworthiness notices. This ANO also prescribes the procedures for the enrollment and conduct of examinations and also specify syllabi for referred technical examinations.

C2. Skill Assessment is also a pre-requisite for the issuance of licenses/ certificates and endorsement of ratings, the details and mechanism for which has been provided in relevant CAA ANOs and other instructions issued from time to time. Unless contrary intentions appear, this ANO shall be read in conjunction with the other Personnel Licensing ANOs for complete requirements for issuance of Licenses/ Ratings/ Certificates.

**D. DESCRIPTION:**

**D1. CONTEXT**

D1.1 Pakistan Civil Aviation Authority (PCAA) has been entrusted with the responsibility to regulate all aviation activities. Under the framework of Civil Aviation Rules 1994 Part V "Personnel Licenses", it has to issue flight crew and other required personnel licenses subject to compliance of the requirements specified in relevant CAA regulations for knowledge, experience and skill. It achieves this by ensuring that applicant has acquired the minimum standards of aeronautical knowledge, experience and skills required to operate safely in the complex aviation environment. Theoretical examinations are required to be passed by each applicant in accordance with the syllabus and procedures provided for relevant license, rating or certificate.

D1.2 Personnel licensing system should have sufficient quality and integrity not only to promote safety but also to ensure international recognition of the high standard of Pakistani licenses. PCAA notify syllabi of training for various licenses and ratings to enable applicants to undergo the required training in the industry, and to attain the required minimum standards.

D1.3 Aviation industry is responsible for designing and conducting structured training programs to ensure that aviation professionals have achieved the required standards. A well-structured training program should have its own internal evaluation system which provides for detailed feedback. The PCAA regulatory examinations are not part of the industry training evaluation system. While PCAA examinations serve as public audit tools to determine the standards of knowledge achieved from industry training, these examinations also ensure the continued safety of aircraft operations.

D1.4 Pakistan CAA has developed an examination system based on multiple choice type questions for its examinations. Candidates are strongly advised to familiarize themselves

thoroughly with the PCAA style of question and associated rules prior to appearing in the examination.

- D1.5 The time allocated to an examination is based on the need for a well-prepared candidate to answer all the questions. The candidate has sole discretion and responsibility in managing the examination time.

## D2. DETAILS OF TECHNICAL EXAMINATIONS

- D2.1. This ANO provides the syllabi, details of papers required for a specific license/ rating and breakdown of each paper and the number of questions which have been specified in an appendix to this ANO as per details given below:

S.No.	License / Rating / Certificate	Appendix
1.	Private Pilot License (Aeroplane & Helicopter): Conversion & Renewal	A
2.	Commercial Pilot License (Aeroplane & Helicopter): Conversion & Renewal	B
3.	Airline Transport Pilot License (Aeroplane & Helicopter): Conversion & Renewal	C
4.	Instrument Rating: Aeroplane & Helicopter	D
5.	Flight Instructors Rating	E
6.	Glider Pilot License	F
7.	Free Balloon Pilot License	G
8.	Flight Engineer License	H
9.	Air Traffic Controller License / Ratings	J
10.	Flight Operations Officers License	K
11.	Validation Certificate for Foreign Licenses	L
12.	Approved Person Examination	M

- D2.2. For detailed guidance of relevant syllabi for specific licenses/ ratings and recommended study material, relevant PEL circular / notices may be referred.

## D3. PAKISTAN CAA EXAMINATION SYSTEM

- D3.1 Pakistan CAA technical examination system uses the intranet based computer testing software to conduct exam. The use of automation ensures quality and integrity of the exams conducted through random selection of questions from a given set of questions and also supports timely availability of exams, virtually instantaneous turnaround of exam results, and a convenient one-stop solution to satisfy the needs of candidates.
- D3.2 PCAA examination system are managed and invigilated by independent PCAA officials including supervisors and invigilators. Examination supervisors process applications for sitting, accept payment vouchers, allocate the exam sessions to candidates, provide pre and post exam details. Invigilators assist the candidates for accessing the examination software on the computers on which where they can start the papers using the sequence number provided by PEL Directorate for a specific examination.
- D3.3 At Karachi, the examinations shall be held at the Personnel Licensing Directorate, Inspectorate Building, HQCAA on daily basis. The examinations shall be conducted at other locations on regular intervals according to the published schedule which will be notified by PEL Directorate. The necessary arrangements for examination and connectivity to the main Examination System will be made by PEL Directorate based on the feasibility and requirements. All such examinations shall be under the supervision of Personnel Licensing Directorate.

**D4. GENERAL CONSIDERATIONS – PAPER SETTING:**

- D4.1 PCAA examination consists of a number of questions that test the skill sets of aeronautical knowledge under a practical duration of examination session. PCAA has sole discretion in restructuring the syllabus coverage of an examination, including emphasizing safety focus as necessary on any area of the syllabus, provided the appropriate allowable time for the examination is not compromised.
- D4.2 All question papers are as per the syllabus provided in this Air Navigation Order which is generally derived from the knowledge requirement as specified in ICAO Annex 1 and other related documents.
- D4.3 All question papers for initial issue of License shall have maximum of 100 questions with time allowed for each paper of 03 hours unless otherwise specified. The question papers for revalidation / renewals may have maximum of 50 questions.
- D4.4 Passing marks of all examinations for the issuance, renewal, validation Licenses, Certificates and Ratings shall be 70%.
- D4.5 The examination system will ensure that each candidate sitting in the examination shall be given a different question paper.

**D5. ASSESSMENT OF ELIGIBILITY TO APPEAR IN EXAMINATIONS**

- D5.1 Only eligible candidates registered with examination branch can appear in an exam provided all other mandatory pre-requisite have been met. A candidate is considered ineligible:
- D5.1.1 Who has already passed the exam or hold a license or rating related to the exam; or
- D5.1.2 Who has failed the particular subject exam and has a 're-training period' which is not yet satisfied; or
- D5.1.3 If suspended by PCAA from sitting exams and whose suspension period is not yet completed.
- D5.2 For candidates converting a foreign license into a Pakistani equivalent, CAA assessment of the foreign license for ICAO compliance is mandatory in addition to meeting the PCAA requirements. Before applying to appear in the exam, the applicant shall submit certified true copies of his/her license, medical and logbook to Personnel Licensing Directorate. Where the details are not in the English language, the applicant is responsible, at his/her own expense, for obtaining a certified translation into English by a Pakistan Government's approved translator.
- D5.3 If a candidate has been inadvertently permitted to undertake an exam without satisfying the appropriate prequalification requirement(s), this shall be taken as the candidate knowingly appeared in CAA exam without qualifying pre-requisite of the exam. PCAA will consider any pass result(s) in such exam(s) as null and void, and invalidate such examinations.

**D6. APPLICATION PROCEDURE**

- D6.1 A candidate shall submit the application to appear in exam on form CAAF-200-LCXX for the required knowledge to Additional Director Examination PEL Directorate. He /she shall ensure fulfillment of the eligibility requirements for the required license, certificate and rating as given in the relevant ANOs.
- D6.2 The authorized person of the Service Provider / Operator / Aviation Training Organization (ATO) e.g. CFI/CGI/Chief Pilot Training or shall recommend the application of candidate for all papers or any one paper for which the student knowledge is satisfactory.
- D6.3 Qualified personnel of the armed forces, equivalent foreign license / certificate holders and candidates for renewal and type endorsements are exempted from above requirement.
- D6.4 ATPL/CPL from contracting states license holders can apply for license conversion case and they may be permitted to appear in two consolidated papers as described in relevant appendix, subject to verification of license from the state of issuance.

D6.5 The application for examination should be submitted / reach the Personnel Licensing Directorate not later than 05 working days for Karachi Center and 07 working days for other centers before the scheduled date. Licensing Directorate is not responsible for postal delays. However, candidate may be allowed to register up to one day before subject to availability of seat for examination and payment of late/urgent fee.

D6.6 After confirmation of registration, candidate must appear in examination at the time specified. Seat availability once confirmed can be cancelled on the request of candidate to the Additional Director Examinations at least 24 hours prior to exam schedule. Fee deposited earlier will be adjusted towards next examination, provided it is taken within next 03 months. Not appearing in any examination will be considered as "Absent" and fee submitted will not be adjusted in next Examination.

D6.7 Candidates are not allowed to reappear in same paper for next 05 working days at any examination center.

#### **D7. EXAMINATION VALIDITY & THEORETICAL KNOWLEDGE CREDIT**

D7.1 All pass credit of examination paper shall be in accordance with the period as specified in this ANO in the relevant appendix.

D7.2 D6.2 An applicant having passed the theoretical knowledge examination for higher licence shall be credited knowledge requirement of lower category of theoretical examinations for the purpose of issuance of lower category of licence.

D7.3 Candidates who have already passed theoretical knowledge examinations for the issue of higher Flight crew license, credit can be availed for Renewal (Air Law & Ops Procedures) Exam for any license, as long as it is within the validity period specified.

D7.4 Credit for theoretical knowledge examinations may be granted to qualified and experienced personnel from the Pakistan Armed Forces. Candidates that believe they are exempt should contact the PCAA PEL Directorate for further instructions and verification. The Licensing Office may verify, if required, from the concerned service / department.

#### **D8. EXAMINATION FEE**

D8.1 The details of examination fee shall be as given in ANO-021-LCXX. Double fee shall be charged if applicant is willing to appear on urgent basis at any centre subject to approval from Additional Director Examination.

D8.2 Validity of original fee voucher will be 90 days maximum (from date of deposit), however, the candidate should apply for registration as soon as possible before expiry of voucher.

#### **D9. ORAL EVALUATION BY AUTHORIZED PERSON:**

D9.1 An authorized person can only conduct oral assessment / examinations for issue, revalidation or renewal of lapsed licenses and ratings with a valid authorization issued by the PEL Directorate. The examiner conducting the oral assessment shall complete the prescribed form and submit it to the Personnel Licensing Directorate.

#### **D10. CONDUCT OF SPECIAL EXAMINATION:**

D10.1 Special Examination for issue / renewal may be permitted, out of the published schedule, for applicants on case to case basis.

#### **D11. CONDUCT OF CAA TECHNICAL EXAMINATION:**

D11.1 Applicant to personally appear and undergo the biometric verification process at the PCAA PEL examination centre at least 30 minutes before the examination time. They should be in possession of required documents for mandatory verification such as CNIC, SPL, ATO ID Card, and Passport (in case of foreigner).

D11.2 Pakistani applicants will be required to go through the process of biometric verification through identification system connected to NADRA database installed at examination centers.



- D11.3 If a candidate fails to provide a photo ID to invigilator or fails for biometric verification, he / she will not be allowed entry into exam hall for appearing in examination. He/ she is solely responsible for losing the booked exam session.
- D11.4 Candidate will be allowed to enter Examination Hall 10 minutes before the commencement of exam where they will be provided credentials to access their examination. The registered candidates can access the computer system after biometric verification on examination Computer on which the exam has to be conducted.
- D11.5 No Mobile phone/ smart gadgets / electronic devices or any other unfair means will be allowed in the Examination Hall.
- D11.6 Candidates once entered in examination hall will not be allowed to leave the examination hall before final submission of appeared examination on the computer.
- D11.7 During the conduct of examination, any interruption by the examination system may immediately be notified to the invigilator for appropriate action for resumption of the exam.
- D11.8 Giving help to or accepting help from any person during the examination is not permitted. Exchange of computers, calculators and stationary's also not permitted during examination.
- D11.9 Copying any portion of the text of the paper or using any outside aid or written material during the examination is not permitted.
- D11.10 A separate blank sheet may be provided for rough work / calculations which must be returned to invigilator prior to leaving examination hall.
- D11.11 A candidate who uses a hand-held calculator during an examination shall use a hand-held calculator, which has the memory-clear feature; and the clear memory shall be demonstrated to the invigilator.
- D11.12 If a candidate is found talking, using unfair means, causing disturbance or not abiding by any of these instructions, the candidate shall be disqualified from the paper apart from other disciplinary action.
- D11.13 A candidate is not permitted to bring any reference book or any written text into the examination center except for open book examination.
- D11.14 All candidates to have their own necessary drawing and calculating equipment e.g. dividers, compasses protectors and navigational computer, etc. when required.
- D11.15 Smoking and visiting toilets during the paper is not permitted.

**D12. EXAMINATION RESULTS:**

- D12.1 All candidates shall be informed of the result immediately after finishing their exam through the computer based examination system. A printed copy of the result should be obtained after completion of examination from Examination office before leaving PEL Directorate.
- D12.2 Consolidated results sheet may be obtained from PEL examination office through written application to Additional Director Examination after payment of applicable fees.
- D12.3 Except for the approved person of an aviation training organization, the examination results of a candidate cannot be disclosed to any other person. However, a candidate may authorize (through written authority) any person to collect or for the disclosure of his examination results.

**D13. CANDIDATES REQUEST FOR RE-CHECKING:**

- D13.1 If a candidate is not satisfied with any question, a request for re-checking of the question may be made on CAAF-203-LCEX and provided to invigilator for processing.
- D13.2 An examiner shall review the question to determine if there was an error. If a question is found inappropriate for the paper under re-check, the question shall be removed and the score shall be given out of the remaining questions.

**D14. USE OF ELECTRONIC DEVICES:**

D14.1 List of approved electronic computers is as follows:-

JEPPESEN/ PROSTAR/AVSTAR/ TECHSTAR  
ASACX1a PATH FINDER  
CESSNA SKY/ COMP  
NAV-gem  
SPORTY's E6B

**D15. PENALTIES FOR USING UNFAIR MEANS:**

D15.1 Penalties resulting from improper conduct/using unfair means or cheating will be determined by the Personnel Licensing Directorate in consultation with Legal branch. Penalties as given in Enforcement manual shall be levied if it is ascertained that the candidate is guilty of using unfair means. Penalties may be time barring, monetary or both. A written report of the incident along with the penalty levied on the candidate will be sent to the Training organization/ operator who had initially forwarded the candidate's name for examination.

D15.2 The material used in cheating / improper conduct e.g., mobile phones, books, written material or any other electronic gadget will be confiscated and if required will be produced as evidence at the time of enquiry.

**E. EVIDENCES (ACRONYMS /RECORDS/ REFERENCES):**

**E1. ACRONYMS:**

E1.1	AIP	AERONAUTICAL INFORMATION PUBLICATION
E1.2	ANO	AIR NAVIGATION ORDER
E1.3	ATC	AIR TRAFFIC CONTROL
E1.4	ATO	AVIATION TRAINING ORGANIZATION
E1.5	APM	AIRPORT MANAGER
E1.6	ATPL	AIRLINE TRANSPORT PILOT LICENSE
E1.7	CPL	COMMERCIAL PILOT LICENCE
E1.8	DOC	DOCUMENT
E1.9	ICAO	INTERNATIONAL CIVIL AVIATION ORGANIZATION
E1.10	MPL	MULTI-CREW PILOT LICENCE
E1.11	PPL	PRIVATE PILOT LICENCE

**E2. RECORDS:**

E2.1	Application Form for Appearing in the Technical Examination	(CAAF-200-LCXX)
E2.2	Oral Assessment Form	(CAAF-201-LCEX)
E2.3	Review of Question in PEL Examination Data Bank	(CAAF-203-LCEX)

**E3. REFERENCES:**

E3.1	CAA Technical Exams (Personnel Licenses, Ratings & Certificates)	(ANO-002-LCXX-1.0)
E3.2	Civil Aviation Rules	(CARs-1994)
E3.3	Personnel Licensing	(ICAO Annex-1)
E3.4	CAA Technical Exam (PPL/CPL/MPL/ATPL)	(ANO-033-LCXX)
E3.5	CAA Personnel Licensing Fee Schedule	(ANO-021-LCXX)
E3.6	Aircraft Maintenance Engineer License	(ANO-066-LCXX)
E3.7	Approved Maintenance Training Organizations	(ANO-147-AWRG)

**IMPLEMENTATION:**

This Air Navigation Order (ANO-002-LCXX-2.0) supersedes CAA Technical Examination (Personnel Licenses, Ratings & Certificates) ANO-002-LCXX-1.0 effective 1<sup>st</sup> January, 2022 and shall be implemented with effect from **4<sup>th</sup> April, 2022**.

**(KHAQAN MURTAZA)**

Director General,  
Pakistan Civil Aviation Authority

Dated:           April, 2022

**(CAPT. MUHAMMAD ZIA KHAN)**

Air Cdre.(Retd.)  
Director Personnel Licensing

Dated:           April, 2022

File: HQCAA/1136/296/LCXX

**APPENDIX – “A”**

**PRIVATE PILOT LICENSE (PPL)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a Private Pilot License and appropriate to the category of aircraft intended to be included in the license, in at least the following subjects:

1.1. **Air law**

Rules and regulations relevant to the holder of a private pilot license; rules of the air; altimeter setting procedures; appropriate air traffic services practices and procedures;

1.2. **Human performance**

Human performance including principles of TEM;

1.3. **Meteorology**

Application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry; hazardous weather conditions;

1.4. **Navigation**

Practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

1.5. **Radiotelephony**

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

1.6. **Aircraft general knowledge for aeroplanes, airships and helicopters**

- a) principles of operation and functioning of engines, systems and instruments;
- b) operating limitations of the relevant category of aircraft and engines; relevant operational information from the flight manual or other appropriate document;
- c) for helicopters, transmission (power trains) where applicable;
- d) for airships, physical properties and practical application of gases;

1.7. **Flight performance, planning and loading**

- a) effects of loading and mass distribution on flight characteristics; mass and balance calculations;
- b) use and practical application of take-off, landing and other performance data;
- c) pre-flight and en-route flight planning appropriate to private operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; position reporting procedures; altimeter setting procedures; operations in areas of high-density traffic;

1.8. **Operational procedures**

- a) application of TEM to operational performance;  
Note:- Guidance material on the application of threat and error management (TEM) is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Part II, Section I in Chapter 6, and in the Human Factors Training Manual (Doc 9683).
- b) altimeter setting procedures;
- c) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- d) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;
- e) in the case of helicopters, settling with power; ground resonance; retreating blade stall; dynamic rollover and other operating hazards; safety procedures, associated with flight in VMC;

1.9. **PRINCIPLES OF FLIGHT**

Principles of flight;

2. **PRIVATE PILOT LICENSE EXAMINATION**

- 2.1 Examination for issuance of new PPL will be taken through e-exam service provider. For configuration of papers and detailed syllabi for issuance of PPL, refer to ANO-033-LCXX.
- 2.2 For renewal of expired Private Pilot Licenses, there will be a single paper PPL-R mainly based on the subject Air Law having at least 50 questions.
- 2.3 The passing mark for paper is 70 %.
- 2.4 The validity of a paper is 01 year from the date the paper was qualified.

**APPENDIX – “B”**

**COMMERCIAL PILOT LICENSE (CPL)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a Commercial Pilot License and appropriate to the category of aircraft intended to be included in the license, in at least the following subjects:

1.1. **Air law**

Rules and regulations relevant to the holder of a commercial pilot license; rules of the air; appropriate air traffic services practices and procedures;

1.2. **Human performance**

Human performance including principles of TEM;

*Note.— Guidance material to design training programmes on human performance, including TEM, can be found in the Human Factors Training Manual (Doc 9683).*

1.3. **Meteorology**

- a) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- b) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
- c) causes, recognition and effects of icing; frontal zone penetration procedures; hazardous weather avoidance;

1.4. **Navigation**

- a) air navigation, including the use of aeronautical charts, instruments and navigation aids; an understanding of the principles and characteristics of appropriate navigation systems; operation of airborne equipment;
- b) in the case of airships:
  - i. use, limitation and serviceability of avionics and instruments necessary for control and navigation;
  - ii. use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight, identification of radio navigation aids;
  - iii. principles and characteristics of self-contained and external referenced navigation systems, operation of airborne equipment;

1.5. **Radiotelephony**

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

1.6. **Aircraft general knowledge for aeroplanes, airships, helicopters and powered-lifts**

- a) principles of operation and functioning of engines, systems and instruments;
- b) operating limitations of the relevant category of aircraft and engines; relevant operational information from the flight manual or other appropriate document;
- c) use and serviceability checks of equipment and systems of appropriate aircraft;
- d) maintenance procedures for airframes, systems and engines of appropriate aircraft;
- e) for helicopters and powered-lifts, transmission (power trains) where applicable;
- f) for airships, physical properties and practical application of gases;

1.7. **Flight performance, planning and loading**

- a) effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
- b) use and practical application of take-off, landing and other performance data;
- c) pre-flight and en-route flight planning appropriate to commercial operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;
- d) in the case of airships, helicopters and powered-lifts, effects of external loading on handling;

1.8. **Operational procedures**

- a) application of TEM to operational performance;
- b) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- c) altimeter setting procedures;
- d) appropriate precautionary and emergency procedures;
- e) operational procedures for carriage of freight; potential hazards associated with dangerous goods;
- f) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
- g) in the case of helicopters, and if applicable, powered-lifts, settling with power; ground resonance; retreating blade stall; dynamic rollover and other operating hazards; safety procedures, associated with flight in VMC;

1.9. **Principles of flight**

Principles of flight;

2. **COMMERCIAL PILOT LICENSE EXAMINATION**

2.1. Examination for issuance of new CPL will be taken through e-exam service provider. For configuration of papers and detailed syllabi for issuance of CPL, refer to ANO-033-LCXX.

2.2. Single Consolidated paper CON-1 is conducted by PEL Directorate CAA to evaluate theoretical knowledge of the given syllabi for conversion of a CPL or for expired licences (beyond 60 months) issued by other contracting states for both categories aeroplane and helicopter as per following breakdown:

Air law	20%
Aircraft general knowledge	10%
Flight performance, planning and loading	10%
Human performance	5%
Meteorology	15%
Navigation	15%
Operational procedures	10%
Principles of flight	10%
Radiotelephony	5%

2.3. In addition, for conversion of a CPL with IR rating issued by other contracting states or for expired licences (beyond 60 months), an additional paper CON-2 will be conducted.

Air law (relevant to flight under IFR) - 20%

Aircraft Gen Knowledge (electronic devices/ instruments required under IFR/ IMC) - 20%

Flight Perf. / Plng (appropriate to flight under IFR) - 10%

Human Perf. (relevant to instrument flight) - 5%

- Navigation - (Systems & Nav sources appropriate to flight under IFR) - 20%
- Operational Procedures. (relevant to IFR ops) - 20%
- Radio Telephony Procedures, (associated with flight under IFR) - 5%
- 2.4. For renewal of expired Commercial Pilot Licenses, there will be a single paper CPL-R mainly based on the subject Air Law having 50 questions.
- 2.5. The passing mark for each paper is 70 % and the validity of a paper is 01 year from the date the paper was qualified.



**APPENDIX – “C”**

**AIRLINE TRANSPORT PILOT LICENSE (ATPL)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an Airline Transport Pilot License and appropriate to the category of aircraft intended to be included in the license, in at least the following subjects:

1.1. **Air law**

Rules and regulations relevant to the holder of an airline transport pilot license; rules of the air; appropriate air traffic services practices and procedures;

1.2. **Human performance**

Human performance including principles of TEM;

*Note.— Guidance material to design training programmes on human performance, including TEM, can be found in the Human Factors Training Manual (Doc 9683).*

1.3. **Meteorology**

- a) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- b) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
- c) causes, recognition and effects of icing; frontal zone penetration procedures; hazardous weather avoidance;
- d) in the case of aeroplanes, practical high altitude meteorology, including interpretation and use of weather reports, charts and forecasts; jet streams;

1.4. **Navigation**

- a) air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- b) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aircraft;
- c) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;
- d) principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment;

1.5. **Radiotelephony**

Communication procedures and phraseology; action to be taken in case of communication failure.

1.6. **Aircraft general knowledge for aeroplanes, airships, helicopters and powered-lifts**

- a) general characteristics and limitations of electrical, hydraulic, pressurization and other aircraft systems; flight control systems, including autopilot and stability augmentation;
- b) principles of operation, handling procedures and operating limitations of aircraft engines; effects of atmospheric conditions on engine performance; relevant operational information from the flight manual or other appropriate document;
- c) operating procedures and limitations of the relevant category of aircraft; effects of atmospheric conditions on aircraft performance in accordance with the relevant operational information from the flight manual;
- d) use and serviceability checks of equipment and systems of appropriate aircraft;

- e) flight instruments; compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments and electronic display units;
  - f) maintenance procedures for airframes, systems and engines of appropriate aircraft;
  - g) for helicopters, transmission (power trains) where applicable;
- 1.7. **Flight performance, planning and loading**
- a) effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
  - b) use and practical application of take-off, landing and other performance data, including procedures for cruise control;
  - c) pre-flight and en-route operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;
  - d) in the case of helicopters, effects of external loading on handling;
- 1.8. **Operational procedures**
- a) application of TEM to operational performance;
  - b) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
  - c) precautionary and emergency procedures; safety practices;
  - d) operational procedures for carriage of freight and dangerous goods;
  - e) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft; operational procedures for carriage of freight; potential hazards associated with dangerous goods;
- a) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
  - b) in the case of helicopters, settling with power; ground resonance; retreating blade stall; dynamic rollover and other operating hazards; safety procedures, associated with flight in VMC;
- 1.9. **Principles of flight**
- Principles of flight;
2. **AIRLINE TRANSPORT LICENSE EXAMINATION**
- 2.1. Examination for issuance of new ATPL will be taken through e-exam service provider. For configuration of papers and detailed syllabi for issuance of ATPL, refer to ANO-033-LCXX.
- 2.2. For renewal of expired Airline Transport Pilot Licenses (within 60 months from expiry), there will be a single paper ATPL-R mainly based on the subject Air Law having 50 questions.
- 2.3. Consolidated paper CON-1 is conducted by PEL Directorate CAA to evaluate theoretical knowledge of the given syllabi for conversion of an ATPL (H) issued by other contracting states or for expired licences (beyond 60 months). Candidates for conversion of ATPL (A) are required to appear in consolidated paper CON-2 also. The composition for both papers is described in Appendix-B (CPL).
- 2.4. The passing mark for each paper is 70 %.
- 2.5. The validity of a paper is 01 year from the date the paper was qualified.

**APPENDIX – “D”**

**INSTRUMENT RATING (IR)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an Instrument Rating and appropriate to the category of aircraft intended to be included in the license, in at least the following subjects:

1.1. **Air law**

Rules and regulations relevant to flight under IFR; related air traffic services practices and procedures;

1.2. **Human performance for the aircraft category being sought**

Human performance relevant to instrument flight in aircraft including principles of TEM;

1.3. **Aircraft general knowledge for the aircraft category being sought (Instrumentation)**

- a) Use, limitation and serviceability of avionics, electronic devices and instruments necessary for the control and navigation of aircraft under IFR and in instrument meteorological conditions; use and limitations of automation;
- b) compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;

1.4. **Flight performance and planning for the aircraft category being sought**

- a) pre-flight preparations and checks appropriate to flight under IFR;
- b) operational flight planning; preparation and filing of air traffic services flight plans under IFR; altimeter setting procedures;

1.5. **Meteorology for the aircraft category being sought**

- a) application of aeronautical meteorology; interpretation and use of reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information; altimetry;
- b) causes, recognition and effects of icing; frontal zone penetration procedures; hazardous weather avoidance;
- c) in the case of helicopters, effects of rotor icing;

1.6. **Navigation for the aircraft category being sought**

- a) practical air navigation using navigation systems;
- b) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of navigation sources;

1.7. **Operational procedures for the aircraft category being sought**

- a) application of TEM to operational performance;
- b) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
- c) precautionary and emergency procedures; safety practices associated with flight under IFR; obstacle clearance criteria;

1.8. **Radiotelephony**

Communication procedures and phraseology as applied to aircraft operations under IFR; action to be taken in case of communication failure.

2. **INSTRUMENT RATING EXAMINATION**

2.1. Following papers are conducted by PEL Directorate CAA to evaluate theoretical knowledge of the given syllabi for new endorsement of Instrument Rating:

IR-1 Operational Procedures (40%), Air Law (20%), Human Performance (10%) and Aircraft General Knowledge (30%)

IR-2 Radio-Navigation (50%), Meteorology (20%), Flight performance (20%) and Radiotelephony including Communication Procedures (10%)

2.2. All papers may be comprised upto 100 questions with time allowed of 01-03 hours for each paper.

2.3. For renewal of expired Instrument rating, there will be a single paper IR-R mainly based on the subject Air Law (50%) and Operational Procedures (50%) having 50 questions.

2.4. The passing mark for each paper is 70 %.

2.5. The validity of a paper is 18 months from the date the paper was qualified.

**APPENDIX – “E”**

**FLIGHT INSTRUCTOR (FI)**

1. **Syllabus:**

- 1.1. The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight instructor rating, in at least the following areas:
- techniques of applied instruction;
  - assessment of student performance in those subjects in which ground instruction is given;
  - the learning process;
  - elements of effective teaching;
  - student evaluation and testing, training philosophies;
  - training programme development;
  - lesson planning;
  - classroom instructional techniques;
  - use of training aids, including FSTDs as appropriate;
  - analysis and correction of student errors;
  - human performance relevant to flight instruction including principles of TEM;
  - hazards involved in simulating system failures and malfunctions in the aircraft.
- 1.2. In addition, applicant should have knowledge of relevant regulations dealing with Flight Crew Licenses including Civil Aviation Rules, ICAO Annexes and Air Navigation Orders which also have weightage in the paper.

2. **FLIGHT INSTRUCTOR EXAMINATION**

- 2.1. There will be only one paper for endorsement of Flight Instructor rating (FI) to evaluate theoretical knowledge of the given areas with 70% comprising from areas defined in Para 1.1 above whereas 30% questions will be from subjects specified in Para 1.2 above.
- 2.2. The FI paper comprises of 50 questions with time allowed of 90 minutes.
- 2.3. The passing mark for each paper is 70 %.
- 2.4. The validity of a paper is 02 year from the date the paper was qualified.

**APPENDIX – “F”**

**GLIDER PILOT LICENSE (GPL)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a Glider Pilot License, in at least the following subjects:

1.1. **Air law**

Rules and regulations relevant to the holder of a glider pilot license; rules of the air; appropriate air traffic services practices and procedures;

1.2. **Aircraft general knowledge**

- a) principles of operation of glider systems and instruments;
- b) operating limitations of gliders; relevant operational information from the flight manual or other appropriate document;

1.3. **Flight performance, planning and loading**

- a) effects of loading and mass distribution on flight characteristics; mass and balance considerations;
- b) use and practical application of launching, landing and other performance data;
- c) pre-flight and en-route flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;

1.4. **Human performance**

Human performance relevant to the glider pilot including principles of TEM;

1.5. **Meteorology**

Application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

1.6. **Navigation**

Practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

1.7. **Operational procedures**

- a) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- b) different launch methods and associated procedures;
- c) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;

1.8. **Principles of flight**

Principles of flight relating to gliders.

1.9. **Radio Telephony**

The applicant should have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a glider pilot license, in communication procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.

2. **GLIDER PILOT LICENSE EXAMINATION**

2.1 PEL Directorate CAA conducts single comprehensive paper GPL to evaluate theoretical knowledge of the given syllabi for issuance of a new GPL with following structure:

- a) Air Law : 10%

- b) Aircraft General Knowledge : 15%
  - c) Flight Performance : 15%
  - d) Human Performance : 10%
  - e) Meteorology : 15%
  - f) Navigation : 10%
  - g) Operational Procedures : 15%
  - h) Principles of Flight : 10%
- 2.2 In addition, an oral assessment for FRTTO will be carried out.
- 2.3 GPL paper comprises of 100 questions with time allowed of 3 hours.
- 2.4 For renewal of expired Glider Pilot Licenses, there will be a single paper GPL-R mainly based on the subject Air Law as described in Para 1.1 having 50 questions.
- 2.5 The passing mark for each paper is 70 %.
- 2.6 The validity of a paper is 01 year from the date the paper was qualified.
- 2.7 For endorsement of Glider Instructor rating, single paper GIR will be conducted to evaluate theoretical knowledge with following structure:
- a) Air Law : 10%
  - b) Glider Instructions : 50%
  - c) Glider Operational Procedures : 20%
  - d) Meteorology : 10%
  - e) Navigation : 10%

**APPENDIX – “G”**

**FREE BALLOON PILOT LICENSE (BPL)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a Free Balloon Pilot License, in at least the following subjects:

1.1. **Air law**

Rules and regulations relevant to the holder of a free balloon pilot license; rules of the air; appropriate air traffic services practices and procedures;

1.2. **Aircraft general knowledge**

- a) Principles of operation of free balloon systems and instruments;
- b) Operating limitations of free balloons; relevant operational information from the flight manual or other appropriate document;
- c) Physical properties and practical application of gases used in free balloons;

1.3. **Flight performance, planning and loading**

- a) effects of loading on flight characteristics; mass calculations;
- b) use and practical application of launching, landing and other performance data, including the effect of temperature;
- c) pre-flight and en-route flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;

1.4. **Human performance**

Human performance relevant to the free balloon pilot including principles of TEM;

1.5. **Meteorology**

Application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

1.6. **Navigation**

Practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

1.7. **Operational procedures**

- a) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- b) Appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;

1.8. **Principles of flight**

Principles of flight relating to free balloons.

1.9. **Radio Telephony**

The applicant should have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a free balloon pilot license, in communication procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.

2. **FREE BALLOON PILOT LICENSE EXAMINATION**

- 2.1 PEL Directorate CAA conducts single comprehensive paper BPL to evaluate theoretical knowledge of the given syllabi for issuance of a new BPL with following structure:



- |                               |       |
|-------------------------------|-------|
| a) Air Law                    | : 10% |
| b) Aircraft General Knowledge | : 15% |
| c) Flight Performance         | : 15% |
| d) Human Performance          | : 10% |
| e) Meteorology                | : 15% |
| f) Navigation                 | : 10% |
| g) Operational Procedures     | : 15% |
| h) Principles of Flight       | : 10% |
- 2.2 In addition, an oral assessment for FRTTO will be carried out.
- 2.3 BPL paper comprises of 100 questions with time allowed of 3 hours.
- 2.4 For renewal of expired Balloon Pilot Licenses, there will be a single paper GPL-R mainly based on the subject Air Law as described in Para 1.1 having 50 questions.
- 2.5 The passing mark for each paper is 70 %.
- 2.6 The validity of a paper is 01 year from the date the paper was qualified.

**APPENDIX – “H”**

**FLIGHT ENGINEER LICENSE (FEL)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a Private Pilot License and appropriate to the category of aircraft intended to be included in the license, in at least the following subjects:

1.1 **Air law**

rules and regulations relevant to the holder of a flight engineer license; rules and regulations governing the operation of civil aircraft pertinent to the duties of a flight engineer;

1.2 **Aircraft general knowledge**

- a) basic principles of engines, gas turbines and/or piston engines; characteristics of fuels, fuel systems including fuel control; lubricants and lubrication systems; afterburners and injection systems, function and operation of engine ignition and starter systems;
- b) principles of operation, handling procedures and operating limitations of aircraft engines; effects of atmospheric conditions on engine performance;
- c) airframes, flight controls, structures, wheel assemblies, brakes and anti-skid units, corrosion and fatigue life; identification of structural damage and defects;
- d) ice and rain protection systems;
- e) pressurization and air-conditioning systems, oxygen systems;
- f) hydraulic and pneumatic systems;
- g) basic electrical theory, electric systems (AC and DC), aircraft wiring systems, bonding and screening;
- h) principles of operation of instruments, compasses, autopilots, radio communication equipment, radio and radar navigation aids, flight management systems, displays and avionics;
- i) limitations of appropriate aircraft;
- j) fire protection, detection, suppression and extinguishing systems;
- k) use and serviceability checks of equipment and systems of appropriate aircraft;

1.3 **Flight performance, planning and loading**

- a) effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
- b) use and practical application of performance data including procedures for cruise control;

1.4 **Human performance**

Human performance relevant to the flight engineer including principles of TEM;

1.5 **Operational procedures**

- a) principles of maintenance, procedures for the maintenance of airworthiness, defect reporting, pre-flight inspections, precautionary procedures for fuelling and use of external power; installed equipment and cabin systems;
- b) normal, abnormal and emergency procedures;
- c) operational procedures for carriage of freight and dangerous goods;

1.6 **Principles of flight**

Fundamentals of aerodynamics;

1.7 **Radiotelephony**

Communication procedures and phraseology.

1.8 **Fundamentals of navigation**

Principles and operation of self-contained systems

1.9 **Meteorology**

Operational aspects of meteorology.

2. **FLIGHT ENGINEER LICENSE EXAMINATION**

2.1 PEL Directorate CAA conducts single comprehensive paper FE to evaluate theoretical knowledge of the given syllabi for issuance of a new FEL with following structure:

- |                               |       |
|-------------------------------|-------|
| a) Air Law                    | : 10% |
| b) Aircraft General Knowledge | : 15% |
| c) Flight Performance         | : 15% |
| d) Human Performance          | : 10% |
| e) Operational Procedures     | : 15% |
| f) Principles of Flight       | : 15% |
| g) Radio Telephony            | : 10% |
| h) Navigation                 | : 5%  |
| i) Meteorology                | : 5%  |

2.2 FE paper comprises of 100 questions with time allowed of 3 hours.

2.3 For renewal of expired Flight Engineer Licenses, there will be a single paper FE-R mainly based on the subject Air Law as described in Para 1.1 having 50 questions.

2.4 The passing mark for each paper is 70 %.

2.5 The validity of a paper is 02 year from the date the paper was qualified.

**APPENDIX – “J”**

**AIR TRAFFIC CONTROLLER LICENSE/ RATINGS**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the holder of an air traffic controller license, in at least the following subjects:

- 1.1 **Air law:** Rules and regulations relevant to the air traffic controller (Aviation Law and Annex 2);
- 1.2 **Air traffic control equipment:** Principles, use and limitations of equipment used in air traffic control;
- 1.3 **General aircraft knowledge:** Principles of flight; principles of operation and functioning of aircraft, engines and systems; aircraft performance relevant to air traffic control operations;
- 1.4 **Human performance:** Human performance including principles of Threat & Error Management;
- 1.5 **Meteorology:** Aeronautical meteorology; use and appreciation of meteorological documentation and information; origin and characteristics of weather phenomena affecting flight operations and safety; altimetry (Relevant aspects from Annex 3 - Meteorology);
- 1.6 **Navigation:** Principles of air navigation; principle, limitation and accuracy of navigation systems and visual aids, Performance Based Navigation;
- 1.7 **ATS Procedures:** The contents of ICAO Doc 4444(PANS-ATM) & Manual of Air Traffic Services covering operational procedures: Air traffic control, communication, radiotelephony and phraseology procedures (routine, non-routine and emergency); use of the relevant aeronautical documentation; safety practices associated with flight;
- 1.8 **Air Traffic Services – ICAO Annex 11;**
- 1.9 **ICAO Annex 14 Volume I Aerodromes Design and Operations:** The provisions of the Annex relevant for provision of ATS;
- 1.10 **Aeronautical Information Management & Aeronautical Charts:** The relevant parts of ICAO Annex 4 and 15 and PANS-AIM providing an understanding of AICs, NOTAMs, AIRAC system and contents of AIP relating to ATS including aeronautical charts.
- 1.11 **Search & Rescue:** The provisions of ICAO Annex 12 relevant for provision of ATS and Search & Rescue setup in Pakistan.
- 1.12 In addition, applicant for ATC rating based on the application of surveillance system shall have demonstrated a level of knowledge which shall include:
  - 1.12.1 Principles, use and limitations of applicable ATS surveillance systems and associated equipment; and
  - 1.12.2 Procedures for the provision of ATS surveillance service, as appropriate, including procedures to ensure appropriate terrain clearance.

2. **ATC LICENSE EXAMINATION**

- 2.1 Following Papers are conducted by PEL Directorate CAA to evaluate theoretical knowledge of the given syllabi for issuance of a new Student ATC Permit:
  - a) ATC-1 Air Law (20%), Aircraft General Knowledge (15%), Human Performance (15%), Meteorology (25%) & Navigation (25%) as described in Para 1.1, 1.3, 1.4, 1.5 & 1.6 above
  - b) ATC-2 ATC equipment (10%), ATS procedures (30%), Air Traffic Services/ Annex-11 (20%), relevant contents of ICAO Annex 14 (10%), Annex 12 (10%), Annex 4, 15 and PANS-AIM (20%) as described in Para 1.2, 1.7, 1.8, 1.9, 1.10 and 1.11 above.
- 2.2 Following Papers are conducted by PEL Directorate CAA to evaluate theoretical knowledge of

the given syllabi for endorsement of a new rating on ATC license:

- a) ATCR-1 The practical aspects relevant for aerodrome control for endorsement of aerodrome rating (100%)
  - b) ATCR-2 The practical aspects relevant for approach control for endorsement of approach control procedural rating (100%)
  - c) ATCR-3 The practical aspects relevant for approach control including knowledge required in Para 1.12 above for endorsement of approach control surveillance rating (100%)
  - d) ATCR-4 The practical aspects relevant for approach control including knowledge required in Para 1.12 above for endorsement of approach precision radar control rating (100%)
  - e) ATCR-5 The practical aspects relevant for area control for endorsement of area control procedural rating (100%)
  - f) ATCR-6 The practical aspects relevant for area control including knowledge required in Para 1.12 above for endorsement of area control surveillance rating (100%)
- 2.3 ATC-1 to ATC-2 papers are comprised of 100 questions each with time allowed of 03 hours for each paper while ATCR-1 to ATCR-6 will have 50 questions with allowed time of 90 minutes.
- 2.4 The passing mark for each paper is 70 %.
- 2.5 The validity of a paper is 02 years from the date the paper was qualified.

**APPENDIX – “K”**

**FLIGHT OPERATIONS OFFICER LICENSE (FOOL)**

1. **Syllabus:**

The applicant shall have demonstrated a level of knowledge appropriate to the holder of a flight operations officer license, in at least the following subjects:

1.1 **Air law**

Rules and regulations relevant for operational control and to the holder of a flight operations officer license; appropriate air traffic services practices and procedures;

1.2 **Aircraft general knowledge**

- a) principles of operation of aeroplane engines, systems and instruments;
- b) operating limitations of aeroplanes and engines;
- c) minimum equipment list and configuration deviation list;

1.3 **Flight performance calculation, planning procedures and loading**

- a) effects of loading and mass distribution on aircraft performance and flight characteristics; mass and balance calculations;
- b) operational flight planning; fuel consumption and endurance calculations; alternate aerodrome selection procedures;
- c) en-route cruise control; extended range operation;
- d) take off performance including field length, climb and obstacle criteria and limitation;
- e) cruise performance including minimum altitudes, decompression/engine out/gear down scenario planning;
- f) landing performance including approach climb and field length criteria and limitations;
- g) preparation and filing of air traffic services flight plans;
- h) basic principles of computer-assisted planning systems;

1.4 **Human performance**

Human performance relevant to operational control duties, including principles of TEM;  
Note.— Guidance material to design training programmes on human performance, including TEM, can be found in the Human Factors Training Manual (Doc 9683).

1.5 **Meteorology**

- a) aeronautical meteorology; the movement of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
- b) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations;
- c) use of, and procedures for obtaining, meteorological information;

1.6 **Navigation**

Principles of air navigation with particular reference to instrument flight;

1.7 **Operational procedures**

- a) use of aeronautical documentation and standard operating procedures;
- b) operational procedures for the carriage of freight and dangerous goods;
- c) procedures relating to aircraft accidents and incidents; emergency flight procedures;
- d) procedures relating to unlawful interference and sabotage of aircraft;

1.8 **Principles of flight**

Principles of flight relating to the appropriate category of aircraft; and

1.9 **Radio communication**

Procedures for communicating with aircraft and relevant ground stations.

2. **FLIGHT OPERATION OFFICER EXAMINATION**

2.1 Following Papers are conducted by PEL Directorate CAA to evaluate theoretical knowledge of the given syllabi for issuance of a new FOO License:

- a) FOO-1 Air Law
- b) FOO-2 Aircraft General Knowledge
- c) FOO-3 Flight performance calculation, planning procedures and loading
- d) FOO-4 Human Performance
- e) FOO-5 Meteorology
- f) FOO-6 Navigation
- g) FOO-7 Operational Procedures
- h) FOO-8 Principles of Flight
- i) FOO-9 Radio Communication

2.2 Papers are comprised upto 100 questions each with time allowed of 01:00 hours to 03 hours for each paper depending on number and type of questions.

2.3 The validity of a paper is 03 year from the date the paper was qualified.

2.4 For renewal of expired Flight Operations Officer License, there will be a single paper FOO-R mainly based on the subject Air Law as described in Para 1.1 having 50 questions.

2.5 The validity of paper FOO-R will be 12 months.

2.6 The passing mark for each paper is 70 %.

**APPENDIX – “L”**

**VALIDATION CERTIFICATES FOR FOREIGN LICENCES**

1. In order to issue a validation certificate for flight crew holding a foreign license of a contracting state, the applicant has to pass this VAL examination'
2. **Syllabus**
  - 2.1 Air Law
3. **Validation Certificate Examination**
  - 3.1 For issue of Validation Certificate, an applicant shall pass written paper of VAL as per weightage described in Para 2.
  - 3.2 The paper may comprise upto 50 questions with time allowed of 90 minutes.
  - 3.3 The passing mark for each paper is 70 %.
  - 3.4 The validity of a paper is 01 year from the date the paper was qualified.
  - 3.5 With prior approval of the DGCAA, validation exam can be conducted at the State of registry of aircraft, at the operator's expense. The team shall consist of 02 members.



**APPENDIX "M"**

**APPROVED PERSON EXAMINATION (AP-1 & AP-2)**

1. In order to authorize a person as a designed examiner for conducting test / examination or a flight check for flight crew licenses on behalf of the Personnel Licencing Directorate, AP-1 examination is conducted to ensure that applicant has adequate knowledge and understanding of the regulatory work in general, and licensing in particular. Similarly, AP-2 examination is conducted for candidates of Designated Check Cabin Crew
2. **Syllabus:**
  - 2.1 The syllabus of AP-1 Examination shall be as follows with weightage of each subject as specified:

a) Chicago Convention	10%
b) ICAO Annex 1	20%
c) Civil Aviation Rules1994	40%
d) Air Navigation Orders (pertaining to licensing)	20%
e) Air Safety Circulars	10%
  - 2.2 The syllabus of AP-2 Examination shall be as follows:

a) Chicago Convention	10%
b) Civil Aviation Rules1994	20%
c) Air Navigation Orders (ANO-001 and ANO-022)	20%
d) ICAO Doc 10002 (Cabin Crew Safety Training Manual)	50%
3. **Approved Person Examination**
  - 3.1 There will be single paper AP-1 and AP-2 for flight crew and Cabin Crew respectively which will comprise of 50 questions and time allowed 90 minutes.
  - 3.2 AP-1 & AP-2 will be open book examinations.
  - 3.3 The passing marks for AP-1 & AP-2 examination is 70 %.
  - 3.4 The validity of paper is 02 year from the date the paper was qualified.