

नेपाल नागरिक उड्डयन प्राधिकरण
प्राविधिक सेवा, एरोनटिकल ईन्जिनियरिङ्ग समूह,
एयरवर्दिनेश इन्जिनियर, आठौँ तहको खुला तथा आन्तरिक प्रतियोगितात्मक
परीक्षाको पाठ्यक्रम

लिखित परीक्षाको विषय, पूर्णाङ्क, परीक्षा प्रणाली, प्रश्नसंख्या, अंकभार र समय निम्नानुसार हुनेछ ।

पत्र	विषय	पूर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या	अंक भार	समय
प्रथम	प्रशासन तथा व्यवस्थापन र ऐन नियम	१००	तर्कयुक्त समस्या समाधान	२ x २०	४०	३ घण्टा
			छोटो उत्तर	६ x १०	६०	
द्वितीय	सेवा सम्बन्धी	१००	तर्कयुक्त समस्या समाधान	२ x २०	४०	३ घण्टा
			छोटो उत्तर	६ x १०	६०	

द्रष्टव्य :

- प्रथमपत्र र द्वितीयपत्रको परीक्षा २ दिनमा हुनेछ ।
- परीक्षाको माध्यम नेपाली वा अंग्रेजी वा दुवै हुनसक्ने छ ।
- प्रत्येक पत्रको उत्तिर्णाङ्क ४०% (चालिस प्रतिशत) हुनेछ । दुवै पत्रमा न्यूनतम उत्तिर्णाङ्क प्राप्त नगर्ने उम्मेदवारहरु अन्तर्वार्तामा सम्मिलित हुन योग्य हुनेछैनन् ।
- अन्तर्वार्ता र शैक्षिक योग्यता
 - अन्तर्वार्ताको अङ्क भार - ३०
 - शैक्षिक योग्यताको अङ्कभार - ३

शैक्षिक योग्यता वापतको अङ्क : न्यूनतम शैक्षिक योग्यता वापत प्रथम श्रेणीलाई ३, द्वितीय श्रेणीलाई २ र तृतीय श्रेणीलाई १ अङ्क प्रदान गरिनेछ ।
- यस पाठ्यक्रममा जेसुकै विषयवस्तु समावेश गरिएको भएतापनि पाठ्यक्रममा परेका कानुन, ऐन, नियम तथा नीतिहरु परीक्षाको मितिभन्दा ३ महिना अगाडि संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई कायम रहेकालाई यस पाठ्यक्रममा परेको संझनुपर्दछ ।
- यस पाठ्यक्रममा उल्लेख भएका विषयहरुका अतिरिक्त समसामयिक घटना तथा विषयवस्तुहरुका सम्बन्धमा समेत प्रश्न सोध्न सकिनेछ ।

प्रथमपत्र : प्रशासन तथा व्यवस्थापन र ऐन नियम

क) प्रशासन तथा व्यवस्थापन

१. सार्वजनिक प्रशासनको परिचय, नवीनतम अवधारणा
२. प्रशासनिक विधिहरु :- कार्य विश्लेषण, कार्य विवरण, कार्य मूल्यांकन र नेपाल नागरिक उड्डयन प्राधिकरणको संगठन संरचना तथा कार्यविधि
३. संगठनात्मक व्यवहार, समूहगत गतिशीलता, समूहगत कार्य र यिनको प्रभावकारिता
४. व्यवस्थापनमा मनोबल, उत्प्रेरणा, बृत्तिविकास र उत्तरदायित्व
५. व्यवस्थापनमा संचार, समन्वय, सुपरिवेक्षण, अनुगमन तथा मूल्यांकन
६. अधिकार प्रत्यायोजन, निर्णय प्रक्रिया र प्रभावकारिता
७. व्यवस्थापन सूचना प्रणाली र महत्व
८. आयोजना व्यवस्थापन
९. वार्ता तथा संझौता गर्ने सम्बन्धी सैद्धान्तिक र व्यवहारिक ज्ञान ।
१०. योजनाको परिचय, तर्जुमाका चरणहरु र नेपालमा आवधिक योजना बारे जानकारी
११. नेपाल नागरिक उड्डयन प्राधिकरणको उद्देश्य, कार्य, नेपाल सरकारसित सम्पर्क
१२. नेपालमा हवाई यातायातको विकासक्रम र चुनौतीहरु
१३. विश्वव्यापीकरण, उदारीकरण र सार्वजनिक संस्थानको अवधारणा र प्रयोग
१४. नेपाल सरकारको राष्ट्रिय हवाई तथा पर्यटन नीति

ख) ऐन नियम

१. नेपालको अन्तरिम संविधान, २०६३
२. नेपाल नागरिक उड्डयन प्राधिकरण ऐन, २०५३
३. नेपाल नागरिक उड्डयन प्राधिकरण कर्मचारीहरुको सेवाका शर्त र सुविधा सम्बन्धी नियमावली, २०५६
४. नेपाल नागरिक उड्डयन प्राधिकरण आर्थिक प्रशासन सम्बन्धी नियमावली, २०५७
५. नागरिक उड्डयन नियमावली, २०५८
६. नेपाल नागरिक उड्डयन प्राधिकरण विमानस्थल सेवा शुल्क नियमावली, २०६७
७. हवाई सुरक्षा व्यवस्था नियमावली, २०४६
८. भ्रष्टाचार निवारण ऐन, २०५९
९. गैह्र सैनिक हवाई उडान ऐन, २०१५

1. MAINTENANCE PRACTICES AND PROCEDURES

1.1 Workshop Standard Practices

- Safety Precautions: Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals.
- Instruction in the remedial action to be taken in the event of a fire or another accident with one or more of the above hazards including knowledge on extinguishing agents.

1.2 Tools

- Operation and use of precision measuring tools;
- Requirements for calibration of precision tools and test equipment, calibration standards.
- Operation, function and use of electrical general test equipment.

1.3 Transmissions

- Inspection of gears, backlash;
- Inspection of belts and pulleys, chains and sprockets;
- Inspection of screw jacks, lever devices, push-pull rod systems.

1.4 Composite and non-metallic

- Bonding methods, practices and inspection of bonded joints.
- Environmental conditions;

1.5 Aircraft Weight and Balance

- Centre of Gravity/Balance limits calculation: use of relevant documents;
- Preparation of aircraft for weighing; Aircraft weighing.

1.6 Aircraft Handling and Storage

- Aircraft taxiing/towing and associated safety precautions;
- Aircraft jacking, chocking, securing and associated safety precautions;
- Aircraft storage methods;
- Refuelling/defuelling procedures;
- De-icing/anti-icing procedures;
- Electrical, hydraulic and pneumatic ground supplies.
- Effects of environmental conditions on aircraft handling and operation.

1.7 Inspection and Repair Techniques

- Corrosion removal, assessment and reprotection;
- Ageing, fatigue and corrosion control programmes;
- Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;
- Trouble shooting techniques.

1.8 Abnormal Events

- Inspections following lightning strikes and HIRF penetration;
- Inspections following abnormal events such as heavy landings and flight through turbulence.

1.9 Maintenance Procedures

- Maintenance planning;
- Modification procedures;
- Stores procedures;
- Certification/release procedures;
- Maintenance Inspection/Quality Control/Quality Assurance;
- Control of life limited components.

2. DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

2.1 Electronic Instrument Systems

Typical systems arrangements and cockpit layout of electronic instrument systems.

2.2 Data Buses

- Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications.
- Aircraft Network/Ethernet.

2.3 Logic Circuits

- Identification of common logic gate symbols, tables and equivalent circuits;
- Applications used for aircraft systems, schematic diagrams.

2.4 Basic Computer Structure

- Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM);
- Computer technology (as applied in aircraft systems).

2.5 Electronic Displays

Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.

2.6 Electrostatic Sensitive Devices

- Special handling of components sensitive to electrostatic discharges;
- Awareness of risks and possible damage, component and personnel anti-static protection devices.

2.7 Software Management Control

Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.

3. Aircraft Engines

3.1 Basic Fundamentals

3.2 Engine Construction

3.3 Engine Fuel Systems

3.4 Combustion Systems

3.5 Compressor and Turbine

3.6 Engine Cooling System

3.7 Oil system

3.8 Igniters Types and Principle

3.9 Engine Control System

3.10 Lubrication

3.11 Engine Starting and Ignition System

3.12 Engine Indication System

3.13 Engine Monitoring and Ground Operation.

3.14 Engine Storage and Preservation.

4. AVIATION LEGISLATION

4.1 Regulatory Framework

- Role of the International Civil Aviation Organisation;
- The Convention on International Civil Aviation;
- International Standards, particularly: Annex 1, Chapter 4, and Annex 6, Part I Chapters 8 and 11, and Part II Chapter 8;
- Role of the Civil Aviation Authority of Nepal;

- Civil Aviation Act(1959), Civil Aviation Authority Act (1996), Civil Aviation Rules(1996) and Civil Aviation Authority Regulations (2002) and amendments made therto;

4.2 Certifying Staff — Maintenance

NCAR Part-66.

4.3 Approved Maintenance Organizations

NCAR Part-145 and Part-M Subpart F.

4.4 OPS – Commercial Air Transportations

- General understanding of EU-OPS.
- Air Operators Certificates;
- Operator's responsibilities, in particular regarding continuing airworthiness and maintenance;
- Aircraft Maintenance Programme;
- Minimum Equipment List/Configuration Deviation List (MEL//CDL);
- Documents to be carried on board;
- Aircraft placarding (markings).

4.5 Aircraft Certification

General

- Certification Rules: Type Certificate, Supplementary Type Certificate;
- NCAR Part – 21 Design/Production Organization Approvals.

Documents

Certificate of Airworthiness; Permit to fly; Certificate of Registration; Noise Certificate; Weight and Balance Schedule; Radio Station Licence.

4.6 Continuing airworthiness

- NCAR Part – 21 provisions related to continuing airworthiness.
- NCAR Part-M Subpart F.

4.7 Applicable National and International Requirements for:

- Maintenance Programmes,
- Maintenance checks and inspections;
- Airworthiness Directives;
- Service Bulletins, manufacturers service information;
- Modifications and repairs;
- Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc.;
- Continuing airworthiness; Test flights;

5. HUMAN FACTORS

5.1 General / Introduction to human factors

- Need to address human factors
- Statistics
- Incidents

5.2 Safety Culture / Organisational Factors

5.3 Human Error

Error models and theories, Types of errors in maintenance tasks, Violations, Implications of errors, Avoiding and managing errors, Human reliability

5.4 Human performance & limitations

Vision, Hearing, Information-processing, Attention and perception, Situational awareness, Memory, Claustrophobia and physical access, Motivation, Fitness/Health, Stress, Workload management, Fatigue, Alcohol, medication, drugs, Physical work, Repetitive tasks / complacency

5.5 Environment

Peer pressure, Stressors, Time pressure and deadlines, Workload, Shift Work, Noise and fumes, Illumination, Climate and temperature, Motion and vibration, Complex systems, Hazards in the workplace, Lack of manpower, Distractions and interruptions,

5.6 Organisation's human factor program

Reporting errors, Disciplinary policy, Error investigation, Action to address problems, Feedback

6. SAFETY MANAGEMENT SYSTEM

6.1 Safety

Defining safety; Safety process: gathering data, identifying & evaluating safety problems, and implementing changes.

6.2 Maintenance Safety Program

Maintenance safety, Ramp safety, Foreign object damage.

6.3 Emergency preparedness & response

Accident investigation & crisis communication

7. AIRWORTHINESS SAFETY OVERSIGHT

7.1 Objective of Airworthiness Safety Oversight

7.2 Means of Airworthiness Safety Oversight

7.3 Airworthiness Audit