

लोक सेवा आयोग
नेपाल इञ्जिनियरिङ्ग सेवा, एरोनोटिकल समूह, राजपत्राङ्कित तृतीय श्रेणी, एरोनोटिकल इञ्जिनियर पदको खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :-	लिखित परीक्षा (Written Examination)	पूर्णाङ्क :- २००
द्वितीय चरण :-	(क) सामूहिक परीक्षण (Group Test)	पूर्णाङ्क :- १०
	(ख) अन्तर्वार्ता (Interview)	पूर्णाङ्क :- ३०

परीक्षा योजना (Examination Scheme)

प्रथम चरण : लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

पत्र	विषय	खण्ड	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या × अङ्क	समय
प्रथम	General Subject	Part I: General Awareness & General Reasoning Test	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	५० प्रश्न × १ अङ्क	१ घण्टा ३० मिनेट
		Part II: General Technical Subject					५० प्रश्न × १ अङ्क	
द्वितीय	Technical Subject		१००	४०	विषयगत (Subjective)	छोटो उत्तर लामो उत्तर	४ प्रश्न × ५ अङ्क ८ प्रश्न × १० अङ्क	३ घण्टा

द्वितीय चरण : सामूहिक परीक्षण (Group Test) र अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ४०

पत्र / विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	समय
सामूहिक परीक्षण (Group Test)	१०		सामूहिक छलफल (Group Discussion)	३० मिनेट
अन्तर्वार्ता (Interview)	३०		बोर्ड अन्तर्वार्ता (Board Interview)	-

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथमपत्र र द्वितीयपत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।
- विषयगत प्रश्नहरूको हकमा तोकिएको अंकको एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
- द्वितीय पत्रमा (विषयगत प्रश्न हुनेका हकमा) प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- यस भन्दा अगाडि लागू भएका माथि उल्लेखित सेवा, समूहको पाठ्यक्रम खारेज गरिएको छ ।
- पाठ्यक्रम लागू मिति : - २०८०/०७/२०

प्रथम पत्र (Paper I): General Subject

Part (I) : - General Awareness & General Ability Test (50 Marks)

1. **General Awareness and Contemporary Issues** (25 ×1 Mark = 25 Marks)
 - 1.1 Physical, socio-cultural and economic geography and demography of Nepal
 - 1.2 Major natural resources of Nepal
 - 1.3 Geographical diversity, climatic conditions, and livelihood & lifestyle of people
 - 1.4 Notable events and personalities, social, cultural and economic conditions in modern history of Nepal
 - 1.5 Current periodical plan of Nepal
 - 1.6 Information on sustainable development, environment, pollution, climate change, biodiversity, science and technology
 - 1.7 Nepal's international affairs and general information on the UNO, SAARC & BIMSTEC
 - 1.8 The Constitution of Nepal (From Part 1 to 5 and Schedules)
 - 1.9 Governance system and Government (Federal, Provincial and Local)
 - 1.10 Provisions of civil service act and regulation relating to constitution of civil service, organisational structure, posts of service, fulfillment of vacancy and code of conduct
 - 1.11 Functional scope of public services
 - 1.12 Public Service Charter
 - 1.13 Concept, objective and importance of public policy
 - 1.14 Fundamentals of management : planning, organizing, directing, controlling, coordinating, decision making, motivation and leadership
 - 1.15 Government planning, budgeting and accounting system
 - 1.16 Major events and current affairs of national and international importance

2. **General Reasoning Test** (25 ×1 Mark = 25 Marks)
 - 2.1 **Logical Reasoning** (9×1 Mark = 9 Marks)
Verbal Ability, Alphanumeric Series, Reasoning Analogies, Classification, Coding-Decoding, Order & Ranking, Distance & Directions, Analytical and Logical Reasoning, Assertion and Reason, Statement and Conclusion, Input-Output, Venn- diagram
 - 2.2 **Numerical Reasoning** (8×1 Mark = 8 Marks)
Arithmetic Series, Analogy, Classification, Arithmetical Reasoning, Fraction. Percentage, Ratio, Average, Profit & Loss, Time & Work, Date & Calender, Data Sufficiency, Data Interpretation & Data Verification
 - 2.3 **Spatial Reasoning** (8×1 Mark = 8 Marks)
Figure Series, Figure Analogy, Figure Classification, Figure Matrix, Pattern Completion, Embedded Images, Image Formation & Analysis, Mirror and Water Images, Cubes and Dices, Paper Folding & Cutting

Part (II) : - General Technical Subject (50 Marks)

Section (A) – 20 %

1. Aerodynamics and Flight Controls

- 1.1 International Standard Atmosphere (ISA)
- 1.2 Indicated airspeed and true airspeed
- 1.3 Concept and different types of airfoil, different types of wing, aspect ratio, camber
- 1.4 Fundamental of airfoils, pressure distribution, lift, drag and different types of drag
- 1.5 Laminar and turbulent flow, boundary layer, vortex generators, angle of attack, centre of pressure, lift/ drag ratio
- 1.6 Three axis of rotation
- 1.7 Principle & functions of ailerons, elevators, rudder, flaps, slats and spoilers
- 1.8 Tabs-balance, trim-tabs, buffeting flutter
- 1.9 Basic concept of compressibility and non compressibility flow
- 1.10 Subsonic, transonic and supersonic speed, and Bernoulli equation

Section (B) – 30 %

2. Aircraft Structure and Construction

- 2.1 Types of construction of fuselage , Monocoque & Semimonocoque
- 2.2 Bulkheads, Longerons, stringers, Ribs, spar, etc.
- 2.3 Types of Landing gears, shock strut (Oleo)
- 2.4 Brakes: types of brakes, brake mechanism, antiskid system, heat dissipation, landing gear doors

3. Aircraft System

- 3.1 Principle and functions of hydraulic system
- 3.2 Principal and function of Pneumatic system
- 3.3 Air conditioning system and pressurization system
- 3.4 De-icing and anti- icing system
- 3.5 Basic principal of fuel system and oxygen system

4. Aircraft Performance

- 4.1 Relation of Temperature, pressure, density with relation to altitude.
- 4.2 Rate climb, descent, approach & landing,
- 4.3 Centre of gravity, center of pressure, flow separation, vector diagram of lift, drag and total reaction
- 4.4 Concept of airplane STALL and its warning mechanism
- 4.5 Consideration of different weight of airplane (weight and balance)

Section (C) – 20 %

5. Gas Turbine Engine

- 5.1 General turbine engine theory and different propulsive forces
- 5.2 Compressor principles and types of compressor mainly used in engine

- 5.3 Compressor surge and bleed valve
- 5.4 Principles of diffuser, guide vanes, combustion chamber, and types of fuel nozzle
- 5.5 Principle and types of turbines
- 5.6 Basic engine oil system, lubrication system and engine fuel system
- 5.7 Basic principle of engine thrust reverser system

Section (D) – 30 %

6. Electrical Power Supply System and Equipment

- 6.1 A/ C internal batteries
- 6.2 Principle and purpose of DC generators & simple alternators, constant speed drives voltage regulation
- 6.3 Circuit protection mechanism
- 6.4 Electric motors & actuators
- 6.5 Basic principle of engine starting system
- 6.6 Over-heating and engine fire protection system

7. A/C Instruments & Instrument System

- 7.1 Basic flight instruments
- 7.2 Purpose and principal of altimeter, airspeed indicator, rate of climb, Mach meter, gyroscopic instruments, turn and slip indicator, directional indicators, pressure, temperature and position indicator, quantity and flow indicators, pitot static system

8. Radio Stations

- 8.1 Location and purposes of radio communication
- 8.2 General principle of ADF, VOR/ILS, DME, weather radar
- 8.3 General principle and operation of HF, VHF, ELT, ADF, VOR, ILS and DME
- 8.4 General principle of transponder, radio altimeter, GPS, TCAS, EGPWS & RVSM

9. Civil Aviation Requirements and Regulatory Rules

- 9.1 Meaning and concept of: Acceptable Deferred Defects (ADDs), Master Minimum Equipment List (MMEL), Design Deviation Guide (DDG), certificate of release to service, deviation / concession, aircraft maintenance program
- 9.2 Basic feature laid down in Section (B) and section (C) of Nepal Civil Airworthiness Requirement (NCAR) of issue 4, 2009
- 9.3 CAAN approved documents and its terminology for “NCAR (part 145, part 66, part 147 and part 21)” and concept and requirement of Continuing Airworthiness Management and Maintenance Organization Exposition (CAMMOE)
- 9.4 The ICAO annexes relating to “Aircraft Licensing”, “Flight Operation”, “Airworthiness”
- 9.5 Basic concept and definition of Safety Management Systems (SMS), Accountable Manager, and Post holders in any approved maintenance organization