

नेपाल नागरिक उड्डयन प्राधिकरण
प्राविधिक सेवा, प्ला.अ.स. समूह, बरिष्ठ अधिकृत, सातौं तहको खुला/आन्तरिक
प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

पाठ्यक्रमको रूपरेखा :- यस पाठ्यक्रमको आधारमा निम्नानुसारका चरणमा परीक्षा लिइने छ :

प्रथम चरण :- लिखित परीक्षा

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता

पूर्णाङ्क :- ३०

परीक्षा योजना (Examination Scheme)

१. प्रथम चरण : लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या X अङ्क	समय
प्रथम	सामान्य ज्ञान, बौद्धिक परीक्षण, व्यवस्थापन र सेवा सम्बन्धी	१००	४०	वस्तुगत	बहुवैकल्पिक प्रश्न (MCQ)	१०० प्रश्न x १ अङ्क	१ घण्टा ३० मिनेट
द्वितीय	सेवा सम्बन्धी	१००	४०	विषयगत	छोटो उत्तर लामो उत्तर	४ प्रश्न X ५ अङ्क ८ प्रश्न X १० अङ्क	३ घण्टा

२. द्वितीय चरण : अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

विषय	पूर्णाङ्क	परीक्षा प्रणाली	समय
व्यक्तिगत अन्तर्वार्ता	३०	मौखिक	-

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईबाट प्रश्नहरू सोधिनेछ ।
- 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 ।
- विषयगत प्रश्नमा प्रत्येक पत्र/विषयका प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका 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 उल्लिखित सेवा, समूहको पाठ्यक्रम खारेज गरिएको छ ।
- पाठ्यक्रम लागू मिति :-

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प्रथम र द्वितीय पत्र :- सामान्य ज्ञान, बौद्धिक परीक्षण, व्यवस्थापन र सेवा सम्बन्धी

भाग (अ) - सामान्य ज्ञान, बौद्धिक परीक्षण र व्यवस्थापन

1. सामान्य ज्ञान

(25 × 1 Mark = 25 Marks)

- 1.1 नेपालको भौगोलिक, ऐतिहासिक, सामाजिक, सांस्कृतिक, राजनैतिक, आर्थिक अवस्था बारे जानकारी
- 1.2 नेपालका प्रमुख प्राकृतिक स्रोतहरु सम्बन्धी जानकारी
- 1.3 नेपालमा पूर्वाधार विकासको वर्तमान अवस्था (यातायात, विद्युत, संचार र प्रविधि)
- 1.4 चालु आवधिक योजना बारे सामान्य जानकारी
- 1.5 संयुक्त राष्ट्रसंघ, सार्क, बिमस्टेक, आसियान र युरोपियन संघ
- 1.6 दिगो विकास, वातावरण प्रदुषण, जनसंख्या, शहरीकरण, जलवायु परिवर्तन र जैविक विविधता
- 1.7 विज्ञान र प्रविधिका महत्वपूर्ण उपलब्धि र अन्तर्राष्ट्रिय महत्वका समसामयिक घटनाहरु
- 1.8 नेपालको वर्तमान संविधान सम्बन्धी जानकारी
- 1.9 नेपाल नागरिक उड्डयन प्राधिकरण एवं नेपालमा हवाई यातायात तथा पर्यटन क्षेत्रको विकास बारे जानकारी
- 1.10 अन्तर्राष्ट्रिय नागरिक उड्डयन संगठन (ICAO), अन्तर्राष्ट्रिय हवाई यातायात संघ (IATA) र अन्य उड्डयन सम्बन्धित क्षेत्रिय संगठन बारे जानकारी
- 1.11 नेपाल नागरिक उड्डयन प्राधिकरण ऐन, २०५३
- 1.12 नागरिक उड्डयन नियमावली, २०५८
- 1.13 नेपाल नागरिक उड्डयन प्राधिकरण कर्मचारीहरुको सेवाका शर्त र सुविधा सम्बन्धी नियमावली, २०५६
- 1.14 नेपाल नागरिक उड्डयन प्राधिकरण आर्थिक प्रशासन सम्बन्धी नियमावली, २०५७
- 1.15 नेपाल नागरिक उड्डयन प्राधिकरण विमानस्थल सेवा शुल्क नियमावली, २०६७
- 1.16 नागरिक उड्डयन सुरक्षा नियमावली, २०७३
- 1.17 विदेशी लगानी तथा प्रविधि हस्तान्तरण ऐन, २०४९
- 1.18 सार्वजनिक खरीद ऐन, २०६३
- 1.19 भ्रष्टाचार निवारण ऐन, २०५९

2. बौद्धिक परीक्षण (General Ability Test)

(10× 1 Mark = 10 Marks)

2.1 Verbal Reasoning Test:

Jumble words, Series, Analogy, Classification, Coding-Decoding, Matrix, Ranking Order Test, Direction and Distance Sense Test, Common Sense Test, Logical Reasoning, Assertion and Reason, Statement and Conclusions, Arithmetical Reasoning/Operation, Decimal, Fraction, Percentage, Ratio, Data interpretation, Data sufficiency, Data verification

2.2 Non-verbal/Abstract Reasoning Test:

Figure Series, Figure Analogy, Figure Classification, Figure Matrix, Pattern Completion/Finding, Analytical Reasoning Test, Figure Formation and Analysis, Rule Detection, Water images, Mirror images, Cubes and Dice, Venn-diagram

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3. **Management** **(15× 1 Mark = 15 Marks)**

- 3.1 Prevailing Governance System in Nepal
- 3.2 Measures to make governance better
- 3.3 Collaborative Governance (Public Private Partnership)
- 3.4 Policy Formulation, Implementation, Analysis, Monitoring and Evaluation
- 3.5 Citizen Involvement in Governance and Service Delivery
- 3.6 Human Resource Management, Human Resource Planning, Human Resource Development, Outsourcing of Human Resources, Performance Appraisal System, Management Audit, Total Quality Management, Quality Circle, Group Dynamics, Team Work, Performance Based Incentive System, Leadership, Motivation, Decision Making, Delegation of Authority, Change Management, Conflict Management, Stress Management, Grievance Handling, Communication, Coordination, Trade Union and Collective Bargaining
- 3.7 Project Management
- 3.8 Inclusive Development
- 3.9 Domestic Resource Mobilization and Foreign Aid Management
- 3.10 Federalism and Local self-Governance
- 3.11 Diversity Management

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भाग (आ) – सेवा सम्बन्धी

खण्ड (क) - ५० %

1. **AIRCRAFT**

35

- 1.1 **Airframe And System** : Types and construction of airframes, Aerofoils, Control surfaces, types and uses, Flight controls, types and uses, Principle of operation and construction of piston and turbine engines, Basic Lubrication, hydraulic system, electrical system, fuel system of general aircraft,
- 1.2 **Aerodynamics** : Aeroplane :Newton's Laws of motion and their application in aircraft flying, Berneoullis' principle and application, Lift-causes, factors affecting lift, Drag-causes, factors affecting drag, Weight-factors affecting the gravity (load factors), Components of lift, drag, thrust and weight
- 1.3 **Aircraft Performance**: Aircraft performance, definition and practical use, Factors affecting aircraft performance, Use of various performance charts, Weight and balance-computation and practical uses
- 1.4 **Engine and Performance** : Work, power, energy, velocity, acceleration; Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop, Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption, Engine efficiencies; By pass ratio and engine pressure ratio; Pressure, temperature and velocity of the gas flow; Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations
- 1.5 **Aircraft Instruments** : Basic flight instruments, principle of operation and practical uses, Basic navigation instruments for VFR flights, principle of operation and practical uses, Basic engine instruments, principle of operation and practical uses.

2. **AIR NAVIGATION**

15

- 2.1 Basic Navigation, The earth, Great circles, small circles, rhumb lines, Magnetic compass-Principle of operation and limitations.
- 2.2 Charts: Representation of meridians, parallels, great circles and rhumb line, Use of aeronautical charts.
- 2.3 Dead Reckoning: Fundamentals of dead-reckoning, Practical application of track, heading, wind, speeds (airspeed, groundspeed).
- 2.4 In-Flight Navigation : Navigation during climb and descent regime of flight, Navigation in cruise flying, Use of fixes to revise navigation data e.g. speed, track, wind, EET and ETA and others etc.
- 2.5 Flight Planning : Preparation of a flight plan, Computation of fuel plan, Computation of headings, ground-speeds, time en-route (EET), true airspeed, wind velocities, Selection of routes (IFR/VFR), Necessity of obtaining weather briefing, Alternate course.

3. METEOROLOGY

15

- 3.1 The Atmosphere and Physical Process: Composition, extent and vertical division, Pressure, density and temperature, Variation of pressure, density and temperature and their effects on the weather, Adiabatic processes, dry air, evaporation, condensation, latent heat, saturated and unsaturated air, inversions and their influences on the weather.
- 3.2 Humidity in atmosphere and its effect on density.
- 3.3 Clouds: Types and classification of clouds, Principle of formation of clouds and its modifications, Flying characteristics in different types of clouds, Cooling by advection, radiation and adiabatic expansion.
- 3.4 Motion of Atmosphere: Relationship between isobars and wind, Fundamental cause of wind, pressure gradient, Coriolis force, geotropical and cyclotropical winds, Convergence and divergence effects, Local winds (Foehn, anabatic, catabatic winds, land and sea breezes and others).
- 3.5 Surface Weather: Formation of fog, mist, haze; Effect on weather by haze, fog and mist; Effect on visibility due to fog, mist, haze, blowing sand, snow or dust etc.
- 3.6 Air Masses: Description, factors affecting the properties of an air mass; Classification of air masses, modification due to various factors and their area of origin; Fronts; Warm, cold, occluded, Stationary fronts, associated clouds and weather.
- 3.7 Weather Observation: Weather charts; Ground observation; Pilot observation; Significance of weather charts; Weather forecast.

4. HUMAN PERFORMANCE AND LIMITATION

10

- 4.1 Altitude Flying: Respiration and blood circulation; Hypoxia, definition, causes, symptoms and remedy; Time of useful consciousness; Definition, causes of hyperventilation; Symptoms and remedy of hyperventilation.
- 4.2 Human Information Processing: Central and peripheral nervous system; Mechanism of perception, constancies, selective perception; Reflexes and biological control systems.
- 4.3 Integration of Sensory Inputs: Basic concepts and definition; Categories of disorientation; Vertigo, Coriolis effect, pressure vertigo, flicker vertigo.
- 4.4 Human Behaviour: General personality and characteristics; Individual differences in personality; Attitude development; Types of human error, prevention and counter measures; Crew coordination.
- 4.5 Flying and Health: Causes and symptoms of incapacitation; Side effects of drug and medication; Procedures for dealing with incapacitation; various toxic materials, alcohol, smoking; Effects of disturbances and treatment.

5. **OPERATIONAL PROCEDURES AND RULES OF THE AIR** **10**
- 5.1 General: Aerodrome operating minima; Minimum flight altitudes; Requirement for alternate aerodrome; Rules of the Air
 - 5.2 Carriage of Freights and Dangerous Goods: Definitions as per ICAO Annex-18; Carriage of freight in passenger cabin with passengers on board; Proper loading and stowing of freight; Classification of dangerous goods.
 - 5.3 Flight Safety: Safety briefing to passengers; Safety procedures to be followed during embarkation and disembarkation of passengers; Handling of passengers during emergency situations; Hazards to flight safety due to cabin pressurization failure.
 - 5.4 Rules and Regulations for CPL Holders: National legislation; Necessity to hold Nepalese CPL; Requirements to issue CPL; Privileges for CPL holder pilots; Limitations for CPL holders.
 - 5.5 Rules of The Air: Definition as per ICAO Annex 2 and 11; Classification and types of aircraft; Right of way; Lights to be displayed by aircraft.
6. **INSTRUMENT FLYING PROCEDURES AND RADIO AIDS TO NAVIGATION** **15**
- 6.1 Basic Instrument Environment: Fundamentals of instrument flying; Pitch instrument; Yaw instrument; Roll instrument; Power instrument.
 - 6.2 Navigation: Orientation to radio navigational aids; Bearings; Interception, tracking of bearings; Way points; Minimum IFR altitudes.
 - 6.3 IFR Charts: Basic concept of charts; Aerodrome charts; Departure charts.
 - 6.4 VOR: Principle of operation; Bearings (Radial); To, From indication and uses; Position of aircraft in relation to radial.
 - 6.5 DME: Principle of operation; DME arcs and indication; DME distances; Difference between DME distance and actual distance; Components of DME receiver.
 - 6.6 ILS: Ground facilities involved; ILS identification; ILS and VOR differences; Back course and front course approaches.
 - 6.7 RADAR: Concept of RADAR; Principle of operation of RADAR; Types of RADAR; Uses of RADAR in navigation; Uses of RADAR in approaches.
 - 6.8 INS, GPS: Fundamental principle of operation; Uses in air navigation; Uses in approaches; Sources of information.

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प्रथम पत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरू सोधिने छ ।

प्रथम पत्र (वस्तुगत बहुवैकल्पिक)				
भाग	विषय		अङ्कभार	प्रश्न संख्या
(अ)	1. सामान्य ज्ञान		२५	२५ प्रश्न X १ अङ्क = २५
	2. बौद्धिक परीक्षण (General Ability Test)		१०	१० प्रश्न X १ अङ्क = १०
	3. व्यवस्थापन (Management)		१५	१५ प्रश्न X १ अङ्क = १५
(आ)	सेवा सम्बन्धी	खण्ड (क)	२५	२५ प्रश्न X १ अङ्क = २५
		खण्ड (ख)	२५	२५ प्रश्न X १ अङ्क = २५
जम्मा			१००	१०० प्रश्न X १ अङ्क = १००

द्वितीय पत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरू सोधिने छ ।

द्वितीय पत्र (विषयगत)					
भाग	विषय	खण्ड	अङ्कभार	छोटो उत्तर	लामो उत्तर
(अ)	-	-	-	-	
(आ)	सेवा सम्बन्धी	(क)	५०	२ प्रश्न X ५ अङ्क = १०	४ प्रश्न X १० अङ्क = ४०
		(ख)	५०	२ प्रश्न X ५ अङ्क = १०	४ प्रश्न X १० अङ्क = ४०
जम्मा			१००	४ प्रश्न X ५ अङ्क = २०	८ प्रश्न X १० अङ्क = ८०