

**नेपाल नागरिक उड्डयन प्राधिकरण**  
प्राविधिक सेवा, सिभिल ईन्जिनियरिङ्ग समूह, आठौं तहको खुला/आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

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

प्रथम चरण :- लिखित परीक्षा

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता

पूर्णाङ्क :- ३०

१. प्रथम चरण : - लिखित परीक्षा					पूर्णाङ्क :- २००	
पत्र	विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली	प्रश्नसंख्या x अङ्क	समय
प्रथम	प्रशासन तथा व्यवस्थापन	100	40	विषयगत	४ प्रश्न X १५ अङ्क = ६० अङ्क २ प्रश्न X २० अङ्क = ४० अङ्क	३ घण्टा
द्वितीय	सेवा सम्बन्धी	100	40	विषयगत	४ प्रश्न X १५ अङ्क = ६० अङ्क २ प्रश्न X २० अङ्क = ४० अङ्क	३ घण्टा
२. द्वितीय चरण : - अन्तर्वार्ता					पूर्णाङ्क :- ३०	
विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली			
अन्तर्वार्ता	30	-	मौखिक			

**द्रष्टव्य :**

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईबाट प्रश्नहरू सोधिनेछ ।
- 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 ।
- पाठ्यक्रम लागू मिति :- २०७४/१०/२८

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प्रथम पत्र :- व्यवस्थापन तथा कानून

खण्ड (क) - (५० अङ्क)

1. सार्वजनिक व्यवस्थापन

- 1.1 सार्वजनिक व्यवस्थापन : परिचय, कार्यक्षेत्र, नवीनतम अवधारणा, विद्यमान चुनौती तथा समाधानका उपायहरू
- 1.2 कार्य विश्लेषण, कार्य विवरण र कार्य मूल्यांकन
- 1.3 संगठनात्मक व्यवहार, समूह निर्माण, समूहगत गतिशीलता, समूहगत कार्य र संगठनमा समूहको भूमिका
- 1.4 कर्मचारीको मनोबल, कार्य उत्प्रेरणा, कर्मचारीको वृत्ति विकास र सार्वजनिक उत्तरदायित्व
- 1.5 संगठनमा संचार, समन्वय, सुपरिवेक्षण, अनुगमन तथा मूल्यांकनको महत्व
- 1.6 व्यवस्थापनमा निर्देशन, नियन्त्रण, अधिकार प्रत्यायोजन, निर्णय प्रक्रिया र नेतृत्व
- 1.7 कार्यसम्पादन मूल्याङ्कन, द्वन्द्व व्यवस्थापन, तनाव व्यवस्थापन, समय व्यवस्थापन, प्रकोप व्यवस्थापन, संकट व्यवस्थापन, परिवर्तन व्यवस्थापन, गुनासो व्यवस्थापन, श्रमिक संगठन (Trade Union) र सामुहिक सौदावाजी (Collective Bargaining)
- 1.8 वार्ता तथा संझौता सम्बन्धी सैद्धान्तिक र व्यवहारिक ज्ञान
- 1.9 व्यवस्थापन सूचना प्रणाली र संगठनमा महत्व
- 1.10 योजनाको परिचय, तर्जुमाका चरणहरू र नेपालमा आवधिक योजना वारे सामान्य जानकारी
- 1.11 सार्वजनिक सेवाको अवधारणा, कार्य, विशेषता र भूमिका
- 1.12 सार्वजनिक सेवा प्रवाह र सार्वजनिक सेवा वडापत्र
- 1.13 विश्व व्यापीकरण, उदारीकरण र सार्वजनिक संस्थानको अवधारणा र प्रयोग

खण्ड (ख) - (५० अङ्क)

2. ऐन, नियम र नीति

- 2.1 नेपालको वर्तमान संविधान
- 2.2 नेपाल नागरिक उड्डयन प्राधिकरण ऐन, २०५३
- 2.3 नागरिक उड्डयन नियमावली, २०५८
- 2.4 नेपाल नागरिक उड्डयन प्राधिकरण कर्मचारीहरूको सेवाका शर्त र सुविधा सम्बन्धी नियमावली, २०५६
- 2.5 नेपाल नागरिक उड्डयन प्राधिकरण आर्थिक प्रशासन सम्बन्धी नियमावली, २०५७
- 2.6 नेपाल नागरिक उड्डयन प्राधिकरण विमानस्थल सेवा शुल्क नियमावली, २०६७
- 2.7 नागरिक उड्डयन सुरक्षा नियमावली, २०७३
- 2.8 विदेशी लगानी तथा प्रविधि हस्तान्तरण ऐन, २०४९
- 2.9 भ्रष्टाचार निवारण ऐन, २०५९
- 2.10 प्रतिलिपि अधिकार सम्बन्धी ऐन, २०५९ र नियमावली, २०६१
- 2.11 विधुतीय कारोबार ऐन, २०६३
- 2.12 सूचनाको हक सम्बन्धी ऐन, २०६४ र नियमावली, २०६५
- 2.13 सार्वजनिक खरिद ऐन, २०६३ र नियमावली, २०६४
- 2.14 हवाई नीति, २०६३
- 2.15 सूचना प्रविधि नीति, २०६७
- 2.16 विज्ञान प्रविधि नीति, २०६०
- 2.17 नेपाल नागरिक उड्डयन प्राधिकरणको संगठनात्मक संरचना, उद्देश्य र कार्यक्षेत्र
- 2.18 नेपालमा हवाई यातायातको विकासक्रम र चुनौतीहरू
- 2.19 अन्तर्राष्ट्रिय नागरिक उड्डयन संगठन (ICAO), अन्तर्राष्ट्रिय हवाई यातायात संघ (IATA) र अन्य उड्डयन सम्बन्धित क्षेत्रिय संगठन वारे जानकारी

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 प्रथम पत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरु सोधिने छ ।

प्रथम पत्र (विषयगत)			
विषय	खण्ड	अङ्कभार	प्रश्न संख्या
प्रशासन तथा व्यवस्थापन	(क)	५०	२ प्रश्न X १५ अङ्क = ३० अङ्क १ प्रश्न X २० अङ्क = २० अङ्क
	(ख)	५०	२ प्रश्न X १५ अङ्क = ३० अङ्क १ प्रश्न X २० अङ्क = २० अङ्क
<b>जम्मा</b>		<b>१००</b>	

भाग (आ) – सेवा सम्बन्धी

**1. Introduction**

- a) History of Civil Aviation in the world and in Nepal
- b) Role and functions of Ministry of Culture, Tourism and Civil Aviation (MOCTCA) and CAAN
- c) Conventions of International Civil Aviation Organization (ICAO)
- d) International and Domestic Airports in Nepal

**2. Airport Planning**

- a) The Elements of an Airport Planning Study: Inventory, Forecasts, Airport Capacity, Facility Requirements, Airport site, Factors influencing Airport size, Land use Planning, Environmental Assessment, Economic and Financial Feasibility, Continuous Planning Process
- b) Airport Site Evaluation: Factors affecting airport location
- c) Airport Master Planning Airport layout, Runway orientation and runway Configurations, Taxiway configuration, Movement area, Manouvering area, Obstacle Limitation Surface, Location of control tower, Terminal area, Aircraft Parking Apron
- d) Airport Airside Capacity and Delay: Runway capacity, Apron Gate Capacity, Taxiway Capacity
- e) Aerodrome Design Standards and Classification as per International Civil Aviation Organization (ICAO)
  - Geometric Design of the Aerodrome
  - Runway, Taxiway Apron and Holding Bays
  - Control Tower Visibility Requirements

**3. Planning and Design of the Terminal Area**

- a) The Passenger Terminal System
- b) Design Considerations
- c) Terminal Planning Process
- d) Apron-Gate System

**4. Visual Aids for Navigation:** Indicators and Signaling Devices, Markings, Lights, Signs, Markers

**5. STOLPORT and Heliports:**

STOLPORT - Physical Characteristics of STOLPORT, Obstacle, Limitation, Surfaces and Requirements, Importance of STOLPORT in Nepal

Heliports - Physical Characteristics of Heliports, Obstacle, Limitation, Surfaces and Requirements

**6. Structure Analysis and Design**

- a) Stresses and strains, theory of torsion and flexure, moment of inertia
- b) Analysis of beams and frames: Bending moment, shear force and deflection of beams and frames; determinate structure - Energy methods, three hinged systems, indeterminate structures, slope deflection method and moment distribution method, use of influence line diagrams for simple beams, unit load method
- c) Reinforced concrete structures: Difference between working stress and limit state philosophy, analysis of RC beams and slabs in bending, shear, deflection, bond and end anchorage, design of axially loaded columns, isolated and combined footings, introduction to pre-stressed concrete
- d) Steel and timber structures: Standard and built-up sections: Design of riveted, bolted and welded connections, design of simple elements such as ties, struts, axially loaded and eccentric columns, column bases, design principles on timber beams and columns

**7. Airport Pavement**

- a) Types of Airport Pavements (Rigid & Flexible Pavements)
- b) CBR Method of Design for Flexible Airport Pavements
- c) Design of Rigid Pavements
- d) Pavements Design Using Elastic Layer Theory
- e) Effect of Frost on Pavement Thickness and their consideration in pavement design
- f) The FAA Method of Design for Flexible and Rigid Airport Pavement
- g) Use of FAA pavement design software (FAARFIELD SOFTWARE) for Airport pavements Design
- h) Design of Overlay Pavements
- i) Aircraft and Airport Pavement Classification Systems (as per ICAO)

**8. Soil Mechanics and Foundation Engineering**

Properties of soils, Identification and classification of soils, Permeability of soils, Shear strength of soils, Stress distribution in soils, Consolidation and settlements, Stability of slopes, Site investigation and soil exploration, Earth pressure and retaining structures, Bearing capacity of soils, Design of building foundation.

**9. Airport Drainage**

Purpose of Drainage, Design Storm for Surface Run-off, Intensity: Duration Pattern for the Design Storm, Amount of Run-off by the FAA Procedure, Amount of Run-off by the Corps of Engineers Procedure, Layout of Surface Drainage, Subsurface Drainage.

**10. Engineering Survey**

- a) Introduction and basic principles of Surveying
- b) Linear measurements: techniques, chain, tape, ranging rods and arrows, representation of measurement and common scales, sources of errors, effect of slope and slope correction, correction for chain and tape measurements, Abney level and clinometers
- c) Compass and plane table surveying: bearings, types of compass, problems and sources of errors of compass survey, principles and methods of plane tabling
- d) Leveling and contouring: Principle of leveling, temporary and permanent adjustment of level, bench marks, booking methods and their reductions, longitudinal and cross sectioning, reciprocal leveling, trigonometric leveling, contour interval and characteristics of contours, methods of contouring
- e) Theodolite traversing: need of traverse and its significance, computation of coordinates, adjustment of closed traverse, closing errors
- f) Uses of Total Station and Electronic Distance Measuring Instruments

**11. Estimating and Costing Valuation and Specification**

- a) Types of estimates and their specific uses
- b) Methods of calculating quantities
- c) Key components of estimating norms and rate analysis
- d) Preparation of bill of quantities
- e) Purpose, types and importance of specification
- f) Purpose, principles and methods of valuation

**12. Construction Management**

- a) Construction scheduling and planning: network techniques (CPM, PERT) and bar charts
- b) Contractual procedure and management: types of contract, tender and tender notice, preparation of bidding (tender) document, contractors pre-qualification, evaluation of tenders and selection of contractor, contract acceptance, condition of contract, quotation and direct ordermuster roll, dispute, claims andits, resolution
- c) Material management: procurement procedures and materials handling
- d) Cost control and quality control
- e) Project maintenance

- f) Occupational health and safety
- g) Project monitoring and evaluation
- h) Quality assurance plan
- i) Variation, alteration and omissions

**13 Aerodrome Construction Technology**

- a) Construction of Runway Strip: Top soil, Earthwork in excavation & filling, Subgrade preparation, compaction, moisture density relationship, field compaction control, soil stabilization, Construction of airport drainages system
- b) Construction of Pavement: Gravel/crushed aggregate base course without binding material, Cement treated base course, Asphalt concrete pavement layers including prime coat, tack coat, and seal coat, Plain cement concrete pavement
- c) Pavement construction Materials: Soils, Soil classification systems, Construction materials for pavement, Types of aggregate and tests on their gradation, strength, durability, bitumen, design of asphalt mix, Testing procedures
- d) Construction Equipment: Factors affecting the selection of construction equipment, Earth moving equipment, Rollers, Asphalt plant and paver, Concrete batching plants
- e) Building Materials and Construction: Classification, specifications and testing of different materials such as Stone masonry: Brick masonry: Hollow Concrete Blocks: Sand: Lime: Mortar: Paintings etc. Water proofing, Roofing Systems. Different types of roofing system, Doors and windows, Walls, Pre-fabrication, Flooring, Plastering, Formworks, Building Elements, Foundation, super structure, lintel, floors, roofs, sun control devices, parapet, staircase, emergency stairs, elevators and escalators, Building services, water supply and sanitation, electrification, heating and ventilation and air-conditioning, National Building Code, Hierarchy of building codes and its application, procedure for implementation of building code in Nepal, Maintenance and repair of buildings, Current building norms for estimating and costing.

**14 Maintenance Management**

- a) Classification of maintenance activities for Airport pavement and facilities, inspection, prioritization and planning of maintenance operations, evaluation of pavement distress and pavement condition, types and methods of pavement repair, types of overlay and strengthening of existing pavements.
- b) Pavement Management Systems
- c) Assessment of runway surface condition, Pavement surface friction and tests, different types of contaminants and its removal.
- d) Pavement evaluation, destructive and non-destructive evaluation methods for structural strength of the pavement

**15 Aerodrome Safety Management System**

Safety management system frameworks (Regulatory framework, ICAO SARPs) - Safety Policy, Safety organization, Safety planning and safety Standards - Hazard identification , Safety Risk Assessment, gap-analysis. - Acceptable level of Safety, Risk mitigation and Safety Assurance - SMS implementation. - Runway safety programme, ramp safety

दोस्रो पत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरू सोधिने छ ।

दोस्रो पत्र (विषयगत)		
विषय	जम्मा अङ्कभार	प्रश्न संख्या
सेवा सम्बन्धी	१००	४ प्रश्न X १५ अङ्क = ६० अङ्क २ प्रश्न X २० अङ्क = ४० अङ्क