

नेपाल नागरिक उड्डयन प्राधिकरण  
प्राविधिक सेवा, मेकानिकल इन्जिनियरिङ्ग समूह, दशौं तह, उपनिर्देशक पदको खुला/आन्तरिक प्रतियोगितात्मक  
लिखित परीक्षाको पाठ्यक्रम  
द्वितीय पत्र : सेवा सम्बन्धी  
खण्ड (क) - ६० अङ्क

**1. General**

- 1.1. External Financing and Donor Funding Policy
- 1.2. Institution Strengthening and Optimization
- 1.3. Budget Planning and Allocation of Resources
  - 1.3.1. Budget formulation
  - 1.3.2. Budget Policy and Resource Management
  - 1.3.3. Budget Control
- 1.4. Contract Management and Dispute Resolution
  - 1.4.1. Management of contract
  - 1.4.2. Dispute, Claim, Adjudication, Arbitration
  - 1.4.3. Methods of dispute resolution
  - 1.4.4. Provision in Public procurement Act and Regulation
- 1.5. Productivity & Efficiency of Organization
- 1.6. Technical Audit (Requirements, Guideline and Practice)

**2. Procurement of Equipment and Consulting Service**

- 2.1. Procurement guidelines of World Bank (WB) & Asian Development Bank (ADB)
- 2.2. International Competitive Bidding (ICB) and National Competitive Bidding (NCB)
- 2.3. Standard Bidding Document
- 2.4. TOR, EOI and RFP
- 2.5. INCOTERMS, Guidelines and requirements

**3. Engineering Economics**

- 3.1. Disbursement scheduling, Cash flow analysis.
- 3.2. Incremental Analysis, Sensitivity and breakeven analysis
- 3.3. Project Evaluation Techniques: Payback period method, NPV method, Future value analysis and IRR method
- 3.4. Risk analysis, Inflation and price change

**4. Electro-Mechanical Equipment and System for Aerodrome**

- 4.1. Pump and Motor
- 4.2. Power Generation Equipment
  - 4.2.1. Stand by Generator, Types, Application and Selection
  - 4.2.2. Concept of Transfer Switch, AMF Panel, Application, Requirements and selection
  - 4.2.3. Battery management system and Electrical power supply System
  - 4.2.4. Uninterruptible Power Supplies (UPS) and No-break power generation

**5. Air Conditioning System**

- 5.1. Air conditioning Equipment, Types and Selection
- 5.2. Cooling Load and Heating Load calculation and Design criteria

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- 5.3. Maintenance of Air condition System/Equipment
- 5.4. Refrigerant: Type, Properties, Environmental effect and selection criteria
- 5.5. Airport Rescue and Fire Fighting Vehicle
- 5.6. Terminal equipment i.e. Baggage Handling System, Elevator, Escalator, Trolley and lifting device
- 5.7. Concept and Application of Friction Testing Machine, PCN Machine
- 5.8. Types and operation of Ground Handling Equipment
- 5.9. Types of equipment for removal of Disabled Aircraft
- 5.10. Application of Electric Vehicle and Charging System
- 5.11. Application of IC engine in airport operation.
- 5.12. Types, application and selection of Electromechanical Equipment/System

**खण्ड (ख) - ४० अङ्क**

**6. Environment Pollution Control**

- 6.1. Pollution Standards
- 6.2. Preventive measures and pollution control
- 6.3. Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA)
- 6.4. Provision in ICAO Annexes for Noise and Emission Control

**7. Industrial Management and Equipment Replacement Policy**

- 7.1. Project Planning & Management
- 7.2. Quality Control (QC), Quality Management System (QMS) & Certification Process
- 7.3. Gap Analysis and Benchmarking for new system
- 7.4. Technology transfer, Adaptation and change management for new equipment and system
- 7.5. Replacement Plan of equipment and systems
- 7.6. Life cycle costing
- 7.7. Standardization of Equipment/Machinery
- 7.8. Equipment/Machinery Selection/Alternatives
- 7.9. Cost Benefit Analysis and Risk Analysis of equipment replacement
- 7.10. Owner Acceptance sampling and Testing
- 7.11. Criteria of Pre-shipment Inspection and Site Acceptance Test

**8. Maintenance Planning of Mechanical equipment**

- 8.1. Periodic/Routine Plan, Recurrent Plan, Emergency Plan for maintenance
- 8.2. Maintenance Practice and Different types of Maintenance
- 8.3. Record keeping and Statistical Method of Data analysis
- 8.4. Tool for System and Process Approach
- 8.5. Spare parts Management and Inventory Control
- 8.6. Ergonomics, Maintainability and Interchangeability

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**9. ICAO related Documents**

- 9.1. ICAO Annexes and Reference Documents related with Mechanical system (Annex 14 part I, Annex 9, Annex 17)
- 9.2. Aerodrome Design Manual DOC 9157
- 9.3. Airport Service Manual Doc 9137

**10. Aerodrome Certification**

- 10.1. Aerodrome Certification Regulatory System
- 10.2. Aerodrome Certification Regulations and requirements
- 10.3. Aerodrome Certification Procedures
- 10.4. Aerodrome Manual
- 10.5. Manual of aerodrome certification ICAO DOC 9774

**11. Safety Management System**

- 11.1. Safety management system frameworks (Regulatory framework, ICAO SARPs)
- 11.2. Safety Policy, Safety organization, Safety planning and safety Standards
- 11.3. Assessment of the current level of safety and Acceptable level of Safety
- 11.4. Hazard identification, Risk mitigation and, Safety Assurance
- 11.5. SMS implementation
- 11.6. SMS Manual

**12. Airport Security and Facilitation**

- 12.1. Airport security programs
- 12.2. Access Control within and throughout Airport buildings
- 12.3. Vehicle Access and vehicular identification
- 12.4. Facilitation in Airport Operation
- 12.5. Barrier free airport, Eco Airport, Green Airport and E –Airport

द्वितीय पत्रबाट निम्नानुसार प्रश्न सोधिनेछ :

द्वितीय पत्र					
विषय	खण्ड	अङ्कभार	परीक्षा प्रणाली		प्रश्न संख्या X अङ्क
सेवा सम्बन्धी	(क)	६०	विषयगत	समस्या समाधानमूलक प्रश्न	३ प्रश्न X २० अङ्क
	(ख)	४०		सैद्धान्तिक-तर्कयुक्त र विश्लेषणात्मक प्रश्न	१ प्रश्न X १५ अङ्क
				व्यावसायिक योजना/मामिला विश्लेषण सम्बन्धी प्रश्न	१ प्रश्न X २५ अङ्क
जम्मा		१००			