

Nepal Airlines Corporation
Syllabus for Senior Engineer Grade- VIII
Aircraft Maintenance Service (Support)
Internal Competition

Stages and Procedure of Examination System

First Stage: Written Examination - Full Marks 200

Weightage Allocation and Marks Distribution

S.No.	Paper	Subject	Time	Full Mark	Section	Marks
1	I	Institutional Awareness and Management	3 Hrs.	100	Section "A" Institutional Awareness	Long Answer 5x10=50
					Section "B" Management	Long Answer 5x10=50
2	II	Service Related	45 Min.	100	Multiple Choice Questions	50x2=100

Second Stage - Interview

Individual Interview

Full Marks - 30

दृष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी वा दुवै हुनेछ ।
- प्रथम, द्वितीय र तृतीयपत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाइबाट 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 उत्तर पुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तर पुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मितिभन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाइएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- यस भन्दा अगाडि लागू भएका माथि उल्लिखित सेवा/समूहको पाठ्यक्रम खारेज गरिएको छ ।
- पाठ्यक्रम लागू मिति :- २०७९।०५।०४

Paper I

Subject: Institutional Awareness and Management

Full Marks: 100

Time: 3hrs.

खण्ड (क) :- संस्थागत ज्ञान (५० अङ्क)

१. संस्थागत ज्ञान (३x१०=३० अङ्क)

- १.१ नेपाल वायुसेवा निगमको स्थापनाको उद्देश्य, संगठनात्मक संरचना, कार्यक्षेत्र, SWOT Analysis, समस्या र चुनौती
- १.२ नेपाल वायुसेवा निगमको पुनर्संरचनाको आवश्यकता र औचित्य
- १.३ नेपाल वायुसेवा निगमबाट प्रवाह हुने सेवाको गुणस्तर, गुणस्तर नियन्त्रण तथा सेवाग्राहीको सन्तुष्टि तथा सेवाको मूल्य निर्धारण सम्बन्धी व्यवस्था
- १.४ अन्य वायुसेवाहरु सँगको प्रतिस्पर्धा, चुनौती तथा भावी कार्यदिशा
- १.५ अन्तर्राष्ट्रिय नागरिक उड्डयन संगठनको स्थापना, लक्ष्य तथा उद्देश्य
- १.६ नेपाल नागरिक उड्डयन प्राधिकरणको स्थापना, लक्ष्य, उद्देश्य, कार्यहरु र नियमनकारी भूमिका
- १.७ नेपालमा सार्वजनिक संस्थानको आवश्यकता, उद्देश्य, स्वायत्तता, उत्तरदायित्व, समस्या र चुनौती
- १.८ संस्थागत सुशासनको अवधारणा र नेपाल वायुसेवा निगमको संस्थागत सुशासनको अवस्था
- १.९ आवधिक योजनामा हवाई क्षेत्र
- १.१० नेपाल वायुसेवा निगमको नेपाल सरकार तथा सम्बद्ध निकायहरूसँगको सम्बन्ध र समन्वय

२. संविधान र सम्बद्ध कानूनहरु (२x१०=२० अङ्क)

- २.१ नेपालको वर्तमान संविधान
- २.२ नेपाल वायुसेवा निगम ऐन, २०१९
- २.३ नेपाल वायुसेवा निगमका कर्मचारीहरुको सेवा, शर्त सम्बन्धी विनियमावली र आर्थिक विनियमावली
- २.४ भ्रष्टाचार निवारण ऐन, २०५९
- २.५ आवश्यक सेवा सञ्चालन ऐन, २०१४
- २.६ सुशासन (व्यवस्थापन तथा सञ्चालन) ऐन, २०६४ र सुशासन (व्यवस्थापन तथा सञ्चालन) नियमावली, २०६५
- २.७ सूचनाको हक सम्बन्धी ऐन, २०६४
- २.८ सार्वजनिक खरिद ऐन, २०६३

खण्ड (ख) :- व्यवस्थापन (५० अङ्क)

3. General Management 3x10=30 Marks

- 3.1 Modern Approaches to Management
- 3.2 Motivation, Leadership, Control, Coordination and Team Work
- 3.3 Role of Manager and Managerial Functions
- 3.4 Managerial Decision Making and Problem Solving
- 3.5 Managing Workforce Diversity

- 3.6 Succession Planning
- 3.7 Quality Management and TQM Techniques
- 3.8 Corporate Planning, Strategic Management and Corporate Social Responsibility
- 3.9 Forces of Organizational Change
- 3.10 Resistance to Change and Overcoming the Resistance to Change
- 3.11 Concept and Characteristics of Organizational Development
- 3.12 Stress Management
- 3.13 Crisis Management

4. Management Information System (MIS) 1x10=10 Marks

- 4.1 Information and Decision Making
- 4.2 Role and Importance of MIS
- 4.3 Managers and Environment
- 4.4 Management as a Control System
- 4.5 System View of Business
- 4.6 Impact of Information System in the Organization and the Society
- 4.7 MIS as a Tool for Management Process
- 4.8 Basic Knowledge of IT
- 4.9 Role of IT in Employee and Organizational Performance
- 4.10 Use of IT in HRM and Accounting System of Nepal Airlines Corporation
- 4.11 ERP (Enterprise Resource Planning)

5. Project Management and Project Evaluation 1x10=10 Marks

- 5.1 Project Concept, Objectives, Project Implementation Schedule, Project Implementation Alternative Solutions and Project Leadership
- 5.2 Preparation of Cost Estimate and Budget, Variation in Project Cost, Opportunity Cost Concept, Incremental Cost and Revenue Analysis, Cost Benefit Analysis, Present Value of Project Cost, Internal Rate of Return, Average Rate of Return and Investment, Network, Cost of Capital

Paper II
Service Related

Full Mark: 100 (Multiple Choice Questions 50x2)

Time: 45 minutes

1. Aviation Legislation (20x2=40 Marks)

- a) Regulatory framework
 - Role of ICAO/ Role of CAA Nepal (CAAN)
 - General understanding of CAAN Regulations
 - Relationship between NCAR Part -145, NCAR-Part 66, NCAR Part-147 and NCAR Part -M
 - Relationship with other Aviation Authorities
- b) NCAR Part 66- Certifying Staff- Maintenance
- c) NCAR Part 145 – AMO, CAMMOE, Approved maintenance organization(Continuing Airworthiness Management and Maintenance Organization Exposition)- Organization Structure, management and working procedure- general understanding
- d) Commercial Air Transportation
 - Air operators certificate (AOC)
 - Operators Responsibility
 - Documents to be carried on board
 - Aircraft placarding / Marking.
- e) Aircraft certification
 - i) General certification rules
 - ii) Type certification
 - iii) Supplemental type certification
 - iv) NCAR Part-21 Design/ Production Organization Approvals Documents:
 - C of A
 - C of R
 - Noise Certificate
 - Weight & Balance
 - Radio station License Approval (RML)
- f) NCAR Part-M Detailed understanding of Part M
- g) Applicable national and substantial requirements
 - Maintenance Program (CMP) (Customized Maintenance Programme)
 - Maintenance checks and inspection
 - MMEL, MEL, DDG, AD, SB, SI, Mods. and repairs
 - Maintenance documentation MM, SRM, IPC etc.
- h) Continuing Airworthiness
 - Test flight, ETOPS, maintenance and dispatch requirements, All weather Ops. Cat 2/3 and minimum equipment requirements, RVSM/ RNAV.
- i) Maintenance Procedures:
 - Maintenance planning, Modification procedures, Store procedure, Certification release procedure, interface with aircraft operation, Maintenance inspection by QC/QA. Additional

maintenance procedure, Control of Timex and life limited parts/components. ECTM, Reliability monitoring.

2. Aircraft General Knowledge (30x2=60 Marks)

- a) Aircraft flight, theory of flight, general principle, fixed wing & rotary wing advantages & disadvantages
- b) Wing design, Aerodynamic and structural requirements, Aspect ratio, plan form, sweep back, Delta wings design of subsonic, transonic & supersonic planes.
- c) Engines: Piston Engine, Turbine Engine. Types and their principles
- d) Propeller, Fundamentals.
 - i. Theory of flight
 - Aeroplane aerodynamics and flight control.
 - Operation and effect of roll control, ailerons and spoilers.
 - Pitch control, elevators, stabilizers, variable incidence stabilizers and canards;
 - Yaw control, rudder limiters.
 - ii. High lift devices: flaps, slats.
 - iii. Drag inducing devices: spoilers, speed brakes.
 - iv. Effects of wing fences. Boundary layer control using, vortex generators, stall wedges or edge devices.
 - v. Operation and effect of trim tabs, balance and anti-balance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamics balance panels.
 - vi. High speed flight: speed of sound, subsonic flight, transonic flight, supersonic flight, Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating.
 - vii. Factors affecting airflow in engine intake of high speed aircraft. Effect of sweepback, critical Mach number.
 - viii. Aircraft Airframe structures: General concepts: Fundamentals of structural systems; (Primary, secondary. etc.), Zonal and station identification systems, Drain and ventilation provisions, Electrical bonding, Lightning strike protection provision.
 - ix. Fuselage (ATA 52/53/56): Construction and pressurization sealing; Wings, stabilizer, pylon and undercarriage attachments; Seat installation & cargo loading systems; Doors and emergency exits; Windows and windscreen
 - x. Wings (ATA 57): Construction; Fuel storage, Landing gear, pylon, control surface, and high lift/ drag attachments.
 - xi. Stabilizers (ATA 55): Control surface attachment;
 - xii. Flight control surfaces (ATA 55/57): Construction and attachment; Balancing- mass and aerodynamics
 - xiii. Nacelles / Pylons (ATA 54) – Construction, firewalls, Engine Mounts.
 - xiv. Air conditioning & cabin pressurization (ATA 21): Air supply – source – engine bleed; APU, Ground cart.