

Nepal Airlines Corporation
Syllabus for Technician Grade - IV
Aircraft maintenance Services
Group: Maintenance Sub-group: General, Tools
Open competition

A. Stages and Procedure of Examination System

चरण	विषय	अंकभार	परीक्षा प्रणाली	प्रश्न संख्या X अङ्क	समय
प्रथम चरण ८०%	सेवा सम्बन्धी	पुर्णोङ्क १०० उत्तिर्णाङ्क ४०	Multiple Choice Questions (वस्तुगत बहुउत्तर)	५० X १ = १००	४५ मिनेट
द्वितीय २०%	अन्तरवार्ता	२०	मैखिक		

B. Material Contents

- 1. Workshop Technology and Maintenance Practices: 8 Questions**
 - 1.1. Fabrication Practices (General Concept)
 - 1.1.1. Arc Welding: Principle, Advantages and Applications, Arc Welding Equipment and Accessories. Arc Welding Methods and Procedures, Welding Electrodes, Safety in Arc Welding.
 - 1.1.2. Oxyacetylene Welding (Gas Welding): Principle, Advantages and Applications. Equipment Tools and Accessories (Uses and Care). Special Safety Precautions in Gas Welding and Flame Cutting.
 - 1.1.3. Resistance Welding: Principle, Types, Applications and Uses.
 - 1.2. Machine Shop Practice:
 - 1.2.1. Types of Machining Methods and Materials Removal Processes.
 - 1.2.2. Accident Prevention and Safety Precautions in Machine Shop.
 - 1.3. Limits, Fits and Tolerances: (Definitions, System and Uses)
- 2. Automobile Technology and General Practices: 02 Questions**
 - 2.2 Transmission system and Transmission components/mechanism
 - 2.5 Air Pollution and Its Controls: CO and its measurement, NO₂, SO₂, HC, PbS Pollutants from Automobile engines.
 - 2.7 Concept of Maintenance, Repairs and Wear in Vehicles
- 3. Hydraulics and Pneumatics: 05 Questions**
 - 3.1 Hydraulic systems: General principle
 - 3.2 Hydraulic Cylinders: (Single/Double acting, Vane and miscellaneous type Cylinders)

- 3.3 Hydraulic Filters, Oil Cooler and Reservoir.
- 3.4 Components of Pneumatic Systems.
- 3.5 Compressors: Types and uses (for painting and other maintenance purposes)
- 3.6 Valves: (Pressure/Flow/Direction Control Valves)

4. Technological Management: 08 Questions

- 4.1 Production process and productivity, time and motion study: concept and application
- 4.2 Materials Handling (requirements for safe and efficient handling/storage procedures)
- 4.3 Quality Control Process: Objective and Importance, TQM
- 4.4 Inventory Management: Meaning and Necessity for painting shop
- 4.5 Estimating and Costing: Estimating and Costing of Jobs in painting Shop, Sheet metal shop, welding/fabrication.
- 4.6 Standard Tools Operation and Storage Procedures
- 4.7 CAAN Rules and Regulations for Tooling
- 4.8 OEM rules and recommended practices for specific Tooling
- 4.9 Tools storage, Inventory keeping and Issuing

5. Industrial Hygiene and Safety: 08 Questions

- 5.1 Industrial Environment: Health Hazards and Their Prevention in tool stores/shop
- 5.2 Pollution in the tool shop: Air Pollution, Vibration, Noise Pollution, etc.
- 5.3 Electrical Accident Prevention during carrying out the jobs
- 5.4 Industrial Lighting and Ventilation for carrying out jobs
- 5.5 Fire Protection
 - 5.5.1 Fire Hazards and principles of accident prevention
 - 5.5.2 Storage of Explosives and flammable inventories
 - 5.5.3 Fire Alarm System
 - 5.5.4 Suppression of fire and fire fighting equipments
- 5.6 Chemical handling: Effects of Toxic Materials. Permissible Limits, Store of Toxic Materials.
- 5.7 Safety Requirements of industrial Equipment and Processes: Machine Guarding, Operating Controls, Safeguards, Interlocks, signals and Colors, Hoisting, Loading and Handling Mechanisms, use of PPE.
- 5.8 Personal Safety, Tools/Equipment Safety, Job Safety.

6. Metrology (Measurement Techniques): 07 Questions

- 6.1 Standard, Units of Measurement used in Engineering Practices
- 6.2 Measuring Instruments (Construction, Types, Applications and Care)
 - 6.2.1 Measurements: Precision and Non-precision, Direct and Analytical
 - 6.2.2 For Surface Level, Surface Straightness Measurements: Spirit Level, Straight Edge, Surface Gauge, Optical Flat, interferometer etc Surface Plate.
 - 6.2.3 Graduation. (Calibration) and Reading of Measuring Instruments

6.2.4 Error, its Types and Measurement of Errors: Flatness, Straightness, roundness, Parallelism, Cylindricity, Perpendicularity, Angularity, intersection of axes, Concentricity.

7. Tools and Equipment and Facility Requirements for a Tool Stores: 02 Questions

7.1 Manual Tools and equipment

7.2 Power driven tools and equipment

7.3 Tooling facility specification: minimizing pollution, minimized health hazard, drying, dust and dirt prevention, Servicing Equipment, capabilities, easy access, secure system, etc.

8. Standard Tooling Procedure: 05 Questions

8.1 Receiving requirements/Job order

8.2 Arrangement of tools and equipment

8.3 Preparation and protection of storage/stowage areas

8.4 Use of standard symbols, colors, patterns for specific components/tools

8.5 Necessary comparison with the standard and recommended practice.

8.6 Test for strength and quality

8.7 Record keeping

9. Safety and Security Management System: 03 Questions

9.1 Its Concept, application and advantages in respect to the General Tooling.

10. Quality Management System (QMS): 02 Questions

10.1 Its Concept, application and advantages in respect to the General Tooling.

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