

## नेपाली सेना

### प्रा.अम. मेकानिकल/ईलेक्ट्रिकल/ग्राउण्ड ह्याण्डलिङ्ग पदको लिखित परीक्षाको पाठ्यक्रम (खुल्ला/आन्तरिक)

समय:- १ घण्टा ४५ मिनेट

पूर्णाङ्क :- १००  
उत्तीर्णाङ्क :- ४०

यो पाठ्यक्रम नेपाली सेनाको प्रा.अम.मेकानिकल/ईलेक्ट्रिकल/ग्राउण्ड ह्याण्डलिङ्ग पदका उम्मेदवार छनौट परिक्षाको लागि निर्धारण गरिएको हो । प्रा.अम.मेकानिकल/ईलेक्ट्रिकल/ग्राउण्ड ह्याण्डलिङ्ग पदका उम्मेदवार छनौटको लिखित परिक्षामा सरिक हुने उम्मेदवारहरूको पेशा सम्बन्धि विषयलाई आधार मानी प्रश्नहरू सोधिने छ ।

- (क) लिखित परिक्षाको माध्यम नेपाली/अंग्रेजी भाषा हुनेछ ।  
(ख) लिखित परिक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र अर्को चरणको परिक्षामा सम्मिलित गराईने छ ।  
(ग) प्रश्न पत्र निर्माण गर्दा सम्भव भएसम्म पाठ्यक्रममा समावेश भएका सबै विषयहरूलाई समेटनु पर्नेछ ।  
(घ) नेपाली सेनाको तत्कालिन आवश्यकता तथा विविध परिस्थितमा नेपाली सेना अनुकूल हुने गरी उल्लेखित विवरणहरूमा हेरफेर हुन सक्नेछ ।  
(ङ) पाठ्यक्रम लागु मिति : २०७१/९/२८ गते ।

प्रश्नको किसिम	प्रश्नको संख्या र अंक	कैफियत
बस्तुगत बहुउत्तर(Multiple Choice)	८० x १= ८०	
छोटो उत्तर दिनु पर्ने प्रश्न	१०x २= २०	

## Syllabus of theory Exam

### 1. Basic Science – 30%

#### Physics

- Newton's Laws of Motion
- Force, Pressure, Work, Power
- Area, Volume, Weight, Unit conversion
- Lever Mechanism
- Heat, Light, Sound
- Magnetism and Electrostatics
- Current Electricity
- Modern Physics

#### Chemistry

- Atom, Molecule, Atomic structure
- Chemical reaction and chemical balance
- Properties of gases
- Properties of solids
- Liquids and solutions
- Ionic equilibrium in aqueous solutions]
- Oxidation reduction reactions
- chemical bond
- Periodic properties
- Metallic and non-metallic elements
- Organic chemistry
- Acid Base
- Electrolytes
- Electroplating

### 2. Electronics &Electrical – 26%

- Voltage, resistance
- Basic circuit components & symbols
- OHMS law, power
- Resistance in parallel, Resistance in series
- Magnetism EMF
- Battery
- Fuse, CB, Relays, Switch
- Ammeter, Voltmeter, Multi-meter
- Diode, Transistor, Amplifier, Rectifier, Inverter
- Kirchhoff's Law
- Effects of electrical circuits (heating, magnetic, chemical)
- Cell and batteries, anode cathode, charging, discharging, internal resistance
- Frequency, amplitude, time period, RMS value
- Star, Delta connection
- Transformer, DC generator, DC motor
- AC fundamentals, AC circuits
- Power factor, Phase angle
- Phase and Line voltage

- R-L-C circuits
- Basic electronics, zener diode, Logic Gates

### 3. Materials, Tools and Workshop -28 %

- Ferrous materials (cast iron, steel, alloy steel, common alloy)
- Non Ferrous materials and their alloys (aluminum, copper , lead , Zinc and their alloys)
- Heat Treatment( Annealing, hardening, Tempering, Normalizing)
- Corrosion
- Tools -Descriptions & Introduction of tools
- Different Types of Engineering Tools
- Vice
- Hammer
- Punches & Drafts
- Limits and fits
- Chisels
- Hacksaw
- File
- Screwdriver
- Measuring & Marking tools
- Pliers
- Spanners
- Wrenches
- Special tools
- Puller
- Extractors
- Different types of gears
- Workshop- Metals, Alloy, Compound
- Heat treatment
- Workshop Machines
- Turning, Drilling, Milling, Reaming, Grinding
- Cutting
- Shaper
- Grinders
- Thread cutting
- Welding
- Soldering, Brazing
- Workshop safety

### Aircraft General -16%

#### 6. Aircraft Introduction Fixed wing

- Rotor wing
- Aircraft components / parts (Structure)
- Aerodynamics
- Engine Introduction

## 7. Aircraft systems

- Control system
- Fuel system
- Lubrication system
- Hydraulic system

## 8. Electrical & Instrument system

### General introduction

- Lighting
- Battery charging
- Basic instrument
- Maintenance procedure

## 9. Radio system

- General introduction of receiver & transmitter
- General introduction of VHF/HF/Intercom maintenance procedure
- Types of communication radios

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(खुल्ला/आन्तरिक)

पुर्णाङ्क : ५०  
उत्तिर्णाङ्क: २५

**1. Identification of tools & their uses- 10%**

- Files
- Hammer
- Taps & dies
- Different types of nuts, bolts and rivets
- Measuring tools
- Plier & screw driver
- Voltmeter
- Multimeter
- Soldering
- Circuit
- Measurement

**2. Machine tools & their uses – 10%**

- Lathe Machine & types
- Shaper Machine
- Milling
- Grinding & types

**3. Automobiles equipment- 10%**

- IC and External combustion engines
- Types of batteries
- Components of engines and their terminologies
- Difference between automobiles oil and aircraft oil

**4. Maintenance safety and support equipment-10%**

- Fire extinguisher & types
- Break down, Preventive & Proactive Maintenance
- Maintenance safety & health hazards

**5. Aircraft general – 10%**

- Types of aircraft
- Aircraft terminology
- Types of aircraft lubricants
- Aircraft engines

Sample Question (नमूनाको लागि प्रश्न पत्रहरु)

बस्तुगत प्रश्न

1. Power is measured in
  - a. Watts
  - b. Volts
  - c. Ampere
  - d. None of these
2. Unit of frequency is
  - a. Joules
  - b. Hertz
  - c. None of these
  - d. Both a and b
3. Resistors in series are
  - a. Subtracted
  - b. Added
  - c. Multiplied
  - d. None
4. According to Ohm's Law
  - a.  $V = IR$
  - b.  $R = V/I$
  - c.  $R = IV$
  - d. Both a and b

विषयगत प्रश्न

1. What are ions?
2. What are molecules?