

## नेपाली सेना

### संभार समुह "ख" श्रेणी प्रा.उ.से.पदको पाठ्यक्रम

समय:- ३ घण्टा

पूर्णाङ्क :- १००

उत्तीर्णाङ्क:- ४०

#### उद्देश्यहरू

यो पाठ्यक्रम नेपाली सेनाको संभार समुह "ख" श्रेणी प्रा.उ.से.पदका उम्मेदवार छनौट परीक्षाको लागि निर्धारण गरिएको हो । संभार समुह "ख" श्रेणी प्रा.उ.से.पदका उम्मेदवार छनौटको लिखित परीक्षामा सरिक हुने उम्मेदवारहरूको पेशा सम्बन्धी विषयलाई आधार मानि प्रश्नहरू सोधिने छ ।

- लिखित परीक्षाको माध्यम नेपाली/अंग्रेजी भाषा हुनेछ ।
- निम्न पत्रहरूको पाठ्यक्रमको रूपरेखा अनुसार विषयवस्तु हुनेछ ।
- लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र अर्को चरणको परीक्षामा सम्मिलित गराईनेछ ।
- प्रश्न पत्र निर्माण गर्दा सम्भव भएसम्म पाठ्यक्रममा समावेश भएका सबै विषयहरूलाई समेटनु पर्नेछ ।
- नेपाली सेनाको तत्कालिन आवश्यकता तथा विविध परिस्थितिमा नेपाली सेना अनुकूल हुने गरी उल्लेखित विवरणहरूमा हेरफेर हुन सक्नेछ ।
- पाठ्यक्रम लागु मिति : २०६६/६/२६ गते देखि

प्रश्नको किसिम	प्रश्नको संख्या र अंक	कैफियत
छोटो उत्तर दिनु पर्ने प्रश्न	४×५=२०	
बस्तुगत	८०×१=८०	

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## SYLLABUS FOR "KHA" GRADE OFFICER (SAMBHAR GROUP)

### 1. Aircraft Engine ( )

#### A. Piston Engine

General knowledge of piston engine theory and construction

Engine fuel and oil system, Ignition and starting system, Engine instruments.

#### B. Gas turbine engine

General knowledge of the thermodynamic laws related to gas turbine engines.

General knowledge of the otto cycle and brayton cycle and the relationship between volume, temperature and pressure.

General knowledge of the terms used in theory of gas turbine engine and calculations of various parameters from the given data

Advantages and disadvantages of various types of gas turbine engines

Knowledge of the function, construction, classification and materials of the various parts and accessories of the engine

Knowledge of the various factors affecting the engine performance

#### Engine fuel system

Knowledge of the principle of operation and construction features of fuel control units, types of fuel used and their characteristics

#### Engine oil system

Knowledge of types and characteristics of lubricants used in the gas turbine engines, functional knowledge and principle and operation of lubrication system

Ignition and starting system; its type and construction

#### Engine fire protection system

Detailed knowledge regarding the fire detection and protection systems

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### Engine instruments

Knowledge of the principle of operation of the engine instruments and its types/construction

### Power augmentation system

Knowledge of the principle of operation and function of various types of power augmentation devices

### Auxiliary power unit

General knowledge of the purpose, constructional features of compressors, combustion chambers and turbine arrangement, speed and load control; limiting factors, fire protection and indication; operational features

### Engine maintenance

Knowledge of trouble shooting of minor defects and methods of their rectification; rigging of engine controls and field adjustment of fuel control unit, periodical inspections necessary for the serviceability of engine. Detailed knowledge of engine starting, run-up and engine performances. Knowledge of engine preservation and de-preservation.

## 2. Aircraft Systems ( )

General knowledge of the function, maintenance and inspection of the following:

- A. Structure and structural components constructed from metal, glass fibre, forces plastic, vinyl perspex
- B. Furnishing materials, paintings, surface finishes and associated materials
- C. Elementary flight controls including power operated/assisted flight controls; Hydraulic and pneumatic systems; landing gear; wheels and tires; antiskid; ice and rain protection system; fire detection and protection; oxygen, air-conditioning and pressurization system; various warning systems
- D. Windows, doors and emergency exits

## 3. Principles of flight ( )

Aerodynamic terms, aerodynamic forces, maneuverability, controllability, stability, lift/drag ratio, load and load factors, stalls and spins, high lift devices, wing shapes, ground effect, turbulence, aerodynamics of helicopter

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#### 4. Aircraft performance ( )

Weight and balance, Headwind and crosswind components, Density altitude, Take-off and landing performance, Cruise performance

#### 5. Aviation Meteorology ( )

Atmosphere, temperature, pressure, density, wind, moisture, stable and unstable air, clouds, air masses and fronts, turbulence, icing, thunderstorm, wind shear, Wind aloft

#### 6. Navigation System ( )

Instrument landing system (ILS): General knowledge, Localizer, Glide slope equipment, ILS marker beacons,

Lighting systems, Runway visibility measurement, Runway visual range (RVR), NDB's

#### 7. Differential pressure instruments ( )

Basic principle, characteristics, operations and function of Altimeter, vertical velocity indicator, airspeed indicator, mach indicator

#### 8. Ground Handling and Servicing ( )

Shop safety, Flight line safety, Servicing aircraft

#### 9. Hand tools and Measuring Devices ( )

Basic knowledge of hand tools, Measuring and Layout tools

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(रमेश कुमार बिष्ट)  
सहायक रथी  
वाहिनीपति