

## नेपाली सेना

### प्रा.अम.सर्भे (खुला र आन्तरिक) पदको पेशा सम्बन्धी विषयको लिखित परीक्षा योजना र पाठ्यक्रम

समय : २ घण्टा ३० मिनेट

पूर्णाङ्क : १००

उत्तीर्णाङ्क : ४०

यो पाठ्यक्रम नेपाली सेनाको विभिन्न ईकाईहरूमा रिक्त रहेको प्रा.अम.सर्भे (खुला र आन्तरिक) पदका उम्मेदवार छनौट परीक्षाको लागि निर्धारण गरिएको हो । लिखित परीक्षामा सरिक हुने उम्मेदवारहरूको पेशा सम्बन्धि विषयलाई आधारमानी प्रश्नहरू सोधिने छ ।

- (क) लिखित परीक्षाको माध्यम नेपाली/अंग्रेजी वा दुवै भाषा हुनेछ ।
- (ख) लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र अर्को चरणको परीक्षामा सम्मिलित गराईने छ ।
- (ग) प्रश्न पत्र निर्माण गर्दा पाठ्यक्रममा समावेश भएका सबै विषयहरूलाई समेटिनेछ ।
- (घ) नेपाली सेनाको आवश्यकता तथा विविध परिस्थितमा नेपाली सेना अनुकूल हुने गरी उल्लेखित विवरणहरूमा हेरफेर हुन सक्नेछ ।
- (ङ) पाठ्यक्रमको रूपरेखा देहायमा उल्लेख गरे अनुसार हुनेछ ।
- (च) पाठ्यक्रम लागु मिति : २०७४/०२/२२ गतेदेखि ।

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### परीक्षा योजना र पाठ्यक्रम

विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्न संख्या X अङ्क	समय
पेशा सम्बन्धी	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	४० प्रश्न X १ अङ्क = ४०	२ घण्टा ३० मिनेट
			विषयगत (Subjective)	छोटो उत्तर	८ प्रश्न X ५ अङ्क = ४०	
				लामो उत्तर	२ प्रश्न X १० अङ्क = २०	

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### पाठ्यक्रम

#### 1. **Introduction of Surveying**

- 1.1 Definition of surveying
- 1.2 Primary division of survey
- 1.3 Classification of surveying
  - 1.3.1 Classification based upon the nature of the field survey
  - 1.3.2 Classification based on the object of survey
  - 1.3.3 Classification based on instrument used
- 1.4 Principles of surveying
- 1.5 Plans and maps
- 1.6 Ideas about scales and its type
- 1.7 Works of surveyor

#### 2. **Linear measurements and conversion of units**

- 2.1 Direct methods of measuring the distances
- 2.2 Conversion from one unit to another units
- 2.3 Types of angles
- 2.4 Types of triangles on the basis of their sides and angles

#### 3. **Lettering and numbering**

- 3.1 Nepali Ka to Gyan
- 3.2 English — A to Z
- 3.3 Numbers -0 to 9

#### 4. **Conventional sign**

- 4.1 Introduction
- 4.2 Construction of different conventional sign (e.g. road, rivers etc)
- 4.3 Constructions of Military symbols

# नेपाली सेना

5. **Sketch**
  - 5.1 Introduction
  - 5.2 Types of sketch
  - 5.3 Importance of sketch
  
6. **Introduction of Survey Instruments**
  - 6.1 Chain
  - 6.2 Compass
  - 6.3 Tapes
  - 6.4 Plane Table
  - 6.5 Telescopic Alidade
  - 6.6 Staff
  - 6.7 Ranging rod
  - 6.8 Sight Vane
  - 6.9 Theodolite I Total Station
  - 6.10 Level A
  
7. **Chain Survey**
  - 7.1 Introduction of Chain Survey
  - 7.2 Principle of Chain Survey
  - 7.3 Survey Lines
    - 7.3.1 Check lines
    - 7.3.2 Tie lines
  - 7.4 Types of offset used in chain survey
  - 7.5 Instruments for setting out right angles
    - 7.5.1 Cross Staff
    - 7.5.2 Optical Square
  - 7.6 Different terminologies used in chain survey
  - 7.7 Obstacles of chain survey
  
8. **Compass Surveying**
  - 8.1 Introduction of Compass survey
  - 8.2 Types of Compass
  - 8.3 Bearing and angles
  - 8.4 Fore bearing, back bearing and its conversion
  - 8.5 Calculation of bearing from angles and vice versa
  - 8.6 Temporary and permanent adjustment of compass
  - 8.7 Error in Compass Survey

# नेपाली सेना

## 9. **Plane Table Surveying**

- 9.1 Different instrument used in plane table surveying
- 9.2 Working operation of plane table
- 9.3 Methods of plane tabling
- 9.4 Error in plane tabling
- 9.5 Advantage and disadvantage of plane tabling

## 10. **Mathematics**

- 10.1 Area and perimeter of triangle, polygon, trapezium, circle etc.
- 10.2 Mean, median and mode of individual and discrete series
- 10.3 Simple problems related to set operation and probability
- 10.4 Concept of different system of angle measuring with their conversions
- 10.5 Trigonometrical ratios
- 10.6 Table values of Trigonometrical ratios of  $30^\circ$ ,  $45^\circ$ ,  $60^\circ$  and  $90^\circ$
- 10.7 Simple problems related to height and distance

## 11. **Concept of different features used in the topographical maps**

## 12. **Role of Nepal Army in various projects of development and construction works**

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Time : 45 min.

Full Marks: 50

Pass Marks: 25

S.N.	Topics	Marks	Time (min)	Remarks
<b>1</b>	<b>Instrument Handling</b>			
	1.1) Compass	12	10	
	1.2) Tape	2	3	
	1.3) Optical square / Cross staff	4	5	
	1.4) Proper holding of Survey staff	5	5	
<b>2</b>	<b>Map reading</b>	5	5	
<b>3</b>	<b>Practical knowledge at subject matter</b>	12	12	
<b>4</b>	<b>Viva</b>	10	5	
	<b>Total</b>	<b>50</b>	<b>45</b>	

#### **1. Instrument Handling:**

1.1 : Compass 12

a) Centering and Leveling 2

b) Observation of magnetic bearing of five different points 10

1.2: Tape 2

Measurement of distance between two given points and conversion it to different linear units. 1+1=2

1.3 Optical square /Cross staff : 4

Taking offsets of any two given points from given chain line

1.4 Proper holding of survey staff : 5

Checking verticality of given survey staff held by the candidate

#### **2. Map reading : 5**

The oral questions are asked to each candidate about five different features of Topographical map.

#### **3. Practical Knowledge at subject matter : 12**

This is to be done to evaluate practical knowledge in the field of surveying (especially survey instruments). There is a written test of subject matter. There are different types of questions like I) multiple choice questions, ii) short answer questions ( answer having word(s) or one sentence), iii) fill in the blanks, iv) True or False etc. (Each question carries 1 mark. No negative mark for wrong answer.)

#### **4.Viva: 10**

Viva is taken for each candidate to evaluate theoretical knowledge at subject matter of Surveying and Mapping. Questions regarding survey activities done by Nepal Army can be also asked. There will be five questions each carries 1mark.

Note: Whatever written in this syllabus, the questions about the newly introducing instruments and technologies related to Surveying and Mapping can be also asked.