

प्रदेश लोक सेवा आयोग  
प्रदेश नं. १, विराटनगर  
स्थानीय सरकारी सेवा अन्तर्गत प्राविधिक तर्फ इन्जिनियरिङ्ग सेवा, सर्भे समूह, चौथो तह (अमिन) पदको  
खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

पाठ्यक्रमलाई निम्नानुसार विभाजन गरिएको छः

प्रथम चरणः	लिखित परीक्षा	पूर्णाङ्कः १००
द्वितीय चरणः	अन्तर्वार्ता	पूर्णाङ्कः २०

**परीक्षा योजना (Examination Scheme)**

प्रथम चरणः- लिखित परीक्षा (Written Examination)

विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या x अङ्क	समय
सेवा सम्बन्धी	१००	४०	वस्तुगतः बहुवैकल्पिक प्रश्न (MCQs)	५० प्रश्न x २ अङ्क	४५ मिनेट

द्वितीय चरणः- अन्तर्वार्ता (Interview)

विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	समय
अन्तर्वार्ता (Interview)	२०	-	मौखिक (Oral)	-

द्रष्टव्य :

१. यो पाठ्यक्रम योजनालाई लिखित परीक्षा र अन्तर्वार्ता गरी दुई चरणमा विभाजन गरिएको छ।
२. प्रश्नपत्र अंग्रेजी भाषामा हुनेछ।
३. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ।
४. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिने छ। तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन।
५. बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै पनि प्रकारको क्यालकुलेटर (Calculator), मोबाइल फोन वा अन्य विद्युतीय उपकरण प्रयोग गर्न पाइने छैन।
६. लिखित परीक्षामा यथासंभव निम्नानुसार प्रश्नहरू सोधिनेछ।

पाठ्यक्रमका एकाई	1	2	3	4	5
प्रश्न संख्या	12	5	20	8	5

७. यस पाठ्यक्रम योजना अन्तर्गतका पत्र तथा विषयका विषयवस्तुमा जे सुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेका लाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ।
८. प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको अन्तर्वार्तामा सम्मिलित गराइनेछ।
९. पाठ्यक्रम लागू मिति: २०७७/१२/०३

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खुला प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

पत्र/ विषय: सेवा सम्बन्धी

**1. Mathematics and Statistics**

**1.1 Mathematics**

- 1.1.1 Units & Conversion
- 1.1.2 Fraction, Decimal, Percentage, Unitary Methods
- 1.1.3 Profit and Loss
- 1.1.4 Square and Square root
- 1.1.5 Mensuration of 2D and 3D objects: Perimeter, Area and Volume
- 1.1.6 Plane geometrical figures & its properties
- 1.1.7 Simple algebraic formulae and algebraic equation
- 1.1.8 Matrix and determinant
- 1.1.9 Indices and Surds
- 1.1.10 Sequence and Series
- 1.1.11 Linear and quadratic equations
- 1.1.12 Right angle triangle & Pythagoras theorem
- 1.1.13 Trigonometrical function & ratio
- 1.1.14 Solution of Trigonometrical equation
- 1.1.15 Solution of Triangles
- 1.1.16 Circular measures
- 1.1.17 Height & Distance
- 1.1.18 Concept of Coordinates: Cartesian, Polar, cylindrical and Spherical Coordinate
- 1.1.19 Coordinate Geometry: Distance formula, equation of straight lines, angle between two lines and equation of circles

**1.2 Statistics**

- 1.2.1 Central Tendency: mean, median and mode
- 1.2.2 Histogram
- 1.2.3 Mean deviation and standard deviation
- 1.2.4 Coefficient of deviation
- 1.2.5 Coefficient of variation

**2. Map Introduction**

- 2.1 Elements of map and map reading
- 2.2 Classification, use and importance of map
- 2.3 Map preparation: Data collection, drawing, plotting and interpretation of maps
- 2.4 Symbol: Types, Necessity, Properties
- 2.5 Scale: Small, Medium & Large
- 2.6 Legend & Marginal Information
- 2.7 Reference System: Geographical & Rectangular
- 2.8 Basic concept of Coordinate systems
- 2.9 Grid system
- 2.10 Sheet Numbering of large-scale maps
- 2.11 Contour & its properties
- 2.12 Data collection from map & data representation, Plotting & Profile drawing

### **3. Surveying & Methodology**

- 3.1 Introduction of Surveying
  - 3.1.1 Basic principles of Surveying
  - 3.1.2 Definition of terms used in Surveying
  - 3.1.3 Units & Measurements
  - 3.1.4 Types & Construction of Scale
  - 3.1.5 Linear & angular measurement
  - 3.1.6 Bearing and Azimuth
  - 3.1.7 Types of error and correction
  - 3.1.8 Setting out building
  - 3.1.9 Accuracy & Tolerance
- 3.2 Traditional Survey Techniques
  - 3.2.1 Introduction and Application of Chain Survey
  - 3.2.2 Introduction and Application of Compass Survey
  - 3.2.3 Plane Table Survey
    - 3.2.3.1 Introduction and Principle of Plane Table Survey
    - 3.2.3.2 Plane table and its accessories.
    - 3.2.3.3 Use of Telescopic Alidade for Horizontal and vertical distances
    - 3.2.3.4 Methods of orientation
    - 3.2.3.5 Methods of Radiation, Intersection, Resection and Traversing
    - 3.2.3.6 Error and adjustment
- 3.3 Cadastral Survey
  - 3.3.1 Purpose, Importance and Methods of Cadastral Survey
  - 3.3.2 Approaches and Methods of Cadastral Survey (conventional and Digital)
  - 3.3.3 Land records
  - 3.3.4 Adjudication, Delineation, Demarcation of parcel boundary
  - 3.3.5 Process of Preparation of Cadastral maps
  - 3.3.6 Procedures of preparing land records, land owner certificate and database
  - 3.3.7 Maintenance of land records, land register and updating of database
- 3.4 Horizontal control surveying/Traversing/Triangulation/GNSS
  - 3.4.1 Traverse
    - 3.4.1.1 Concept of different traversing methods
    - 3.4.1.2 Principles traversing.
    - 3.4.1.3 Importance and use.
    - 3.4.1.4 Field Procedure: Planning, Reconnaissance, monumentation and observation
    - 3.4.1.5 Preparation and Use of D-card
    - 3.4.1.6 Methods and types of traversing
    - 3.4.1.7 Observation of Horizontal angle, vertical angle.
    - 3.4.1.8 Measurement of traverse leg
    - 3.4.1.9 Preparation of field book
    - 3.4.1.10 Error and adjustment in observed angles
    - 3.4.1.11 Traverse plotting
    - 3.4.1.12 Preparation of traverse chart
  - 3.4.2 Triangulation
    - 3.4.2.1 Introduction to triangulation
    - 3.4.2.2 Importance and use
    - 3.4.2.3 Principles triangulation
    - 3.4.2.4 Trigonometrical stations and triangulation figures

- 3.4.2.5 Field Procedure: Planning, Reconnaissance, monumentation and observation
- 3.4.2.6 Preparation and Use of D-card
- 3.4.2.7 Well condition triangle and Ideal figure
- 3.4.2.8 Observation of Horizontal angle, vertical angle
- 3.4.2.9 Measurement of Base line
- 3.4.2.10 Preparation of field book and its check
- 3.4.2.11 Error and adjustment in observed angles and sides
- 3.4.2.12 Comparison between triangulation and trilateration
- 3.4.3 Global Navigation Satellite System (GNSS)
  - 3.4.3.1 Basic concepts
  - 3.4.3.2 Components of GNSS
  - 3.4.3.3 Principle of positioning
  - 3.4.3.4 Satellite and signals
  - 3.4.3.5 Application of GNSS
- 3.5 Vertical control surveying: Levelling
  - 3.5.1 Introduction
  - 3.5.2 Level line
  - 3.5.3 Horizontal line
  - 3.5.4 Mean sea level data [MSL data]
  - 3.5.5 Bench mark
  - 3.5.6 Reduced level
  - 3.5.7 Relative height
  - 3.5.8 Field procedure
  - 3.5.9 Reduction of level
  - 3.5.10 Sources of error
  - 3.5.11 Precautions of leveling
- 3.6 Tacheometry
  - 3.6.1 Introduction
  - 3.6.2 Principle
  - 3.6.3 Tacheometric methods
  - 3.6.4 Tacheometers
  - 3.6.5 Advantage and disadvantage
  - 3.6.6 Application of tacheometry

#### **4. Instruments & its Maintenance**

- 4.1 Total Station/Theodolite
  - 4.1.1 Principle and its application
  - 4.1.2 Measurement of Horizontal Adjustment (H.A.) & Vertical Adjustment (V.A.)
  - 4.1.3 Handling Care & Maintenance of Equipments
- 4.2 GNSS Equipment
  - 4.2.1 Introduction & Application
  - 4.2.2 Antenna, controller/ receivers
  - 4.2.3 Care and maintenance.

#### **5. कानून सम्बन्धी सामान्य ज्ञान**

- 5.1 नेपालको संविधान (भाग १, २, ३, १७ र १८ तथा अनुसूचीहरू)
- 5.2 स्थानीय सरकार सञ्चालन ऐन, २०७४ (परिच्छेद-२, ३, ७, ११ र अनुसूची-१)
- 5.3 जग्गा (नाप जाँच) ऐन, २०१९

- 5.4 भू-उपयोग ऐन, २०७६
- 5.5 जग्गा (नाप जाँच) नियमावली, २०५८
- 5.6 भूमि सम्बन्धी ऐन, २०२१ (परिच्छेद- १, २, ३, ४, ६ र ७)
- 5.7 भूमि सम्बन्धी नियमहरू, २०२१ (परिच्छेद-१, २, ३, ४क र ४ख)
- 5.8 जग्गा नाप जाँच तथा नक्सा श्रेस्ता अध्ययावधिक निर्देशिका
- 5.9 बस्ती विकास, सहरी योजना तथा भवन निर्माण सम्बन्धी आधारभुत निर्माण मापदण्ड, २०७२
- 5.10 स्थानीय तहका कर्मचारीको सेवा सर्त सम्बन्धी कानून

### नमूना प्रश्नहरू (Model Questions)

1. Setting out of building corner at right angle is based on the theorem/rule.
  - A. Sine rule
  - B. Cosine rule
  - C. Pythagoras theorem
  - D. Simpson's rule
2. The map sheet 162-1264-4 lies in the zone of Nepal whose central meridian is
  - A. 81<sup>0</sup>E
  - B. 84<sup>0</sup>E
  - C. 87<sup>0</sup>E
  - D. 87<sup>0</sup>W
3. Which of the following is not true?
  - A. All points on a contour line are of the same elevation.
  - B. Widely spaced contour lines indicate gentle slope.
  - C. Closed contour lines with higher elevation towards the center indicate depression.
  - D. Equally spaced contour lines indicate uniform slope.
4. Which is the hug data mine technology for geographical study?
  - A. Geographical information system
  - B. Remote Sensing
  - C. GNSS
  - D. Plane Table Survey
5. As on the basis of local government regulation act, 2074 parcel splitting operation is the responsibility of
  - A. Rural Municipality office
  - B. Municipality office
  - C. Ward office
  - D. Survey office