

लोक सेवा आयोग
नेपाल इञ्जिनियरिङ्ग सेवा, माइनिङ्ग समूह, राजपत्र अनंकित प्रथम श्रेणी, माइनिङ्ग सब-इन्स्पेक्टर वा सो सरह
पदको खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

पाठ्यक्रमको रूपरेखा:- यस पाठ्यक्रमको आधारमा निम्नानुसार चरणमा परीक्षा लिइने छ :

प्रथम चरण :-	लिखित परीक्षा	पूर्णाङ्क :- १००
द्वितीय चरण :-	अन्तर्वार्ता	पूर्णाङ्क :- २०

प्रथम चरण – लिखित परीक्षा योजना (Examination Scheme)

विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या X अङ्कभार	समय
सेवा सम्बन्धी	१००	४०	वस्तुगत बहुवैकल्पिक (Multiple Choice)	५० प्रश्न X २ अङ्क = १००	४५ मिनेट

द्वितीय चरण

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	२०	मौखिक

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
- लिखित परीक्षामा यथासम्भव निम्नानुसार प्रश्नहरू सोधिनेछ ।

Unit	1	2	3	4	5	6	7
No. of Questions	12	4	15	8	5	2	4

- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै 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 रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको अन्तर्वार्तामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागू मिति :- २०७२/०४/२८ गते देखि

पत्र/ विषय :- सेवा सम्बन्धी

1. Mining and Geology

- 1.1. Geological map
- 1.2. Common rocks of Nepal
- 1.3. Mineral prospect of Nepal and their potentiality
- 1.4. Current status of exploration and mining industry in Nepal
- 1.5. Applicability and limitations of prospecting and mining lease area
- 1.6. Mining and geological exploration terms, terminology and symbol
- 1.7. Mine Development Technique : surface and underground mine development, machinery and environment and safety consideration
- 1.8. Mining parameters: size of mine area, shape and dimensions of underground openings and underground workings, pit-depth, bench height, width and slope, ultimate pit slope, cut-off grade, stripping ratio and annual production and anticipated mine life
- 1.9. Opening of deposits: factors influencing in location of mine openings, underground opening of deposits
- 1.10. Mining Methods: open pit mining and underground mining, selection of mining method, factors influencing in equipment selection, mine scheduling
- 1.11. Overburden/waste removal: equipment selection
- 1.12. Breaking technology: conventional drilling and blasting, non-conventional breaking
- 1.13. Methods of handling and transportation, transport system (types, selection, deployment and application)
- 1.14. Mine production support system, mine lighting, dust control, noise control, drainage management, slope management, water management, manpower management

2. Mine's Environment & Safety

- 2.1. Occupational health and safety
- 2.2. Mine hazards and safety: mine fires (underground and quarry), mine explosion, mine inundation, mine rescue and recovery work
- 2.3. Mine ventilation and environment
- 2.4. Impacts, mitigation, enhancement and monitoring method
- 2.5. Mine reclamation

3. Introduction to Surveying

- 3.1. Fundamental of Surveying : principles and classifications; measurement units; map and scale; linear and angular measurements; map reading; measurement errors
- 3.2. Survey Instrument : ranging instruments, distance measuring instruments: Surveyor's chain, measuring tape, Stadia measurement system, electronic distance meters, principle of direction measurements; direction elements: meridians, bearing and conversion; magnetic declination; essential components in a direction measuring instrument; magnetic compass, surveyor's compass, Brunton compass,

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graphical surveying instruments: plane table & accessories, Theodolites (analog and digital), total station, level instruments

- 3.3. Control Surveying : Levelling; Traverse; Triangulation; Trilateration; Theodolite Resection and Intersection
- 3.4. Survey Drawing : introduction; equipments and materials; geometrical drawings - introduction, plane figures (regular and irregular); drawing techniques; freehand sketching; copying; isometric and orthographic projection; profile : definition and importance of cross-section and longitudinal-section; introduction to engineering drawing; section views and dimensioning intersections; Computer Aided Design (CAD) - working principle and use
- 3.5. Topographical Survey : introduction; process of plane table surveying; operations of numerical survey; instruments and accessories used for numerical surveying
- 3.6. Elementary Geodesy and GPS : figure of the earth; shape and size of the earth, Spheroid and Geoid, Everest spheroid and its parameters; geographical coordinates, and rectangular coordinates, concept of coordinate conversion; Global Positioning System

4. Mapping and GIS

- 4.1. Components of cartography - map compilation, map reproduction, graphic variables; map projection; map sheet numbering; generalization, relief representation; colour; digital cartography
- 4.2. Geographic Information System (GIS) Basics: Database Management System, Logical Data (DBMS) concept and relationships, data models and DBMS applications; GIS and spatial data models; introduction to GIS; vector data model, Raster data model, TIN data models; GIS operations and map composition: querying databases; overlay operation and geo-processing; map composition; GIS applications: data integration; spatial analysis; classification and measurement; overlay functions and neighborhood analysis; 3D analysis; visualization; map data types; types of maps and map design principles; quality and accuracy of GIS maps/ data; data quality; accuracy assessment

5. Cadastral Surveying & Land management

- 5.1. Fundamentals of cadastral surveying and cadastral maps
- 5.2. Cadastral Data Acquisition : Plane Tabling Technique, concept of digital cadastre, Parcel delineation from orthophoto
- 5.3. Cadastral Surveying in Nepal
- 5.4. Introduction to land administration; land tenure and rights; land registration system; land conflicts and their resolutions; land management; land valuation; land information system in Nepal; institutions related to surveying, mapping and land administration
- 5.5. Essential components of survey management, terms of reference, technical standards and specifications

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- 5.6. Survey project implementation; quality management: task supervision, instrument adjustments
- 5.7. Care and safety of instrument, rescue measures, insurance, personal safety, first aid
- 5.8. Public Relation and Professional Ethics

6. Engineering Survey

- 6.1. Survey Component in various engineering construction projects, route survey; area and volume; site survey
- 6.2. Types of estimates; methods/procedures of estimating

7. Relevant Legislations

- 7.1. Civil Service Acts, 2049; and Regulation, 2050
- 7.2. Land Survey and Measurement Act, 2056; and Regulation, 2058
- 7.3. Mines and Minerals Act, 2042 and Regulation, 2056

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Sample Questions

1. For a well conditioned triangle, no angle should be less than
A) 20°
B) 30°
C) 45°
D) 60°
2. Select the incorrect statement
A) The true meridians at different places are parallel to each other
B) The true meridian at any place is not variable
C) The true meridians converge to a point in northern and southern hemisphere
D) The maps prepared by national survey departments of any country are based on true meridians
3. Turning the telescope of a theodolite about the vertical axis in horizontal plane is termed
A) Transiting
B) Reversing
C) Plunging
D) Swinging
4. Which shape best represents the surface of Earth?
A) Sphere
B) Spheroid
C) Ellipsoid
D) Geoid
5. The datum for representing the relief of earth's surface is
A) Mean Sea Level
B) Centre of Earth
C) Centre of Gravity of Earth
D) Ellipsoidal surface
6. In GIS, another term for the property of connectivity is
A) Proximity
B) Neighbourhood
C) Topology
D) Location