लोक सेवा आयोग

नेपाल इञ्जिनियरिङ्ग सेवा, माइनिङ्ग इन्जिनियरिङ्ग समूह, राजपत्राङ्कित तृतीय श्रेणीका पदको खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :–	लिखित परीक्षा (Written Examination)	पूर्णाङ्क :– २००
द्वितीय चरण :-	(क) सामूहिक परीक्षण (Group Test)	पूर्णाङ्क :– १०
	(ख) अन्तर्वार्ता (Interview)	पूर्णाङ्क :– ३०

परीक्षा योजना (Examination Scheme)

प्रथम चरण : लिखित परीक्षा(Written Examination) **पूर्णाङ्क :– २००**

पत्र	विषय	खण्ड	पूर्णाङ्क	उर्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या ×अङ्क	समय
प्रथम	General Subject	Part I: General Awareness & General Reasoning Test	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	५० प्रश्न ×१ अङ्क	१ घण्टा ३० मिनेट
		Part II: General Technical Subject					५०प्रश्न ×१ अङ्क	
द्वितीय	Technical Subject		१००	४०	विषयगत (Subjective)	छोटो उत्तर लामो उत्तर	४ प्रश्न ×५अङ्क ८ प्रश्न ×१०अङ्क	३ घण्टा

द्वितीय चरण : सामूहिक परीक्षण (Group Test) र अन्तर्वार्ता (Interview) **पूर्णाङ्क :– ४०**

पत्र /विषय	पूर्णाङ्क	उर्तीर्णाङ्क	परीक्षा प्रणाली	समय
सामूहिक परीक्षण (Group Test)	१०		सामूहिक छलफल (Group Discussion)	३० मिनेट
अन्तर्वार्ता (Interview)	३०		बोर्ड अन्तर्वार्ता(Board Interview)	-

द्रष्टव्य :

१. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।

२. प्रथमपत्र र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।

३. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरुको 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 ।

४. बहुवैकल्पिक प्रश्नहरु हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।

५. विषयगत प्रश्नहरुको हकमा तोकिएको अंकको एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरु (Short notes) सोध्न सकिने छ ।

६. द्वितीय पत्रमा (विषयगत प्रश्न हुनेका हकमा) प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरु हुनेछन् । परिक्षार्थीले प्रत्येक खण्डका प्रश्नहरुको उत्तर सोहीखण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।

७. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्क्रममा परेको सम्झनु पर्दछ ।

८. प्रथमचरणको परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र द्वितीयचरणको परीक्षामा सम्मिलित गराइनेछ ।

९. यस भन्दा अगाडि लागु भएका माथि उल्लेखित सेवा, समूहको पाठ्यक्रम खारेज गरिएको छ ।

१०. पाठ्यक्रम लागू मिति : **२०८०/०७/२०**

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प्रथम पत्र (Paper I): General Subject

Part (I) : - General Awareness & General Ability Test (50 Marks)

1. **General Awareness and Contemporary Issues (25 ×1 Mark = 25 Marks)**
   - 1.1 Physical, socio-cultural and economic geography and demography of Nepal
   - 1.2 Major natural resources of Nepal
   - 1.3 Geographical diversity, climatic conditions, and livelihood & lifestyle of people
   - 1.4 Notable events and personalities, social, cultural and economic conditions in modern history of Nepal
   - 1.5 Current periodical plan of Nepal
   - 1.6 Information on sustainable development, environment, pollution, climate change, biodiversity, science and technology
   - 1.7 Nepal's international affairs and general information on the UNO, SAARC & BIMSTEC
   - 1.8 The Constitution of Nepal (From Part 1 to 5 and Schedules)
   - 1.9 Governance system and Government (Federal, Provincial and Local)
   - 1.10 Provisions of civil service act and regulation relating to constitution of civil service, organisational structure, posts of service, fulfillment of vacancy and code of conduct
   - 1.11 Functional scope of public services
   - 1.12 Public Service Charter
   - 1.13 Concept, objective and importance of public policy
   - 1.14 Fundamentals of management : planning, organizing, directing, controlling, coordinating, decision making, motivation and leadership
   - 1.15 Government planning, budgeting and accounting system
   - 1.16 Major events and current affairs of national and international importance

2. **General Reasoning Test (25 ×1 Mark = 25 Marks)**
   - 2.1 **Logical Reasoning** (9×1 Mark = 9 Marks)
     Verbal Ability, Alphanumeric Series, Reasoning Analogies, Classification, Coding-Decoding, Order & Ranking, Distance & Directions, Analytical and Logical Reasoning, Assertion and Reason, Statement and Conclusion, Input-Output, Venn- diagram
   - 2.2 **Numerical Reasoning** (8×1 Mark = 8 Marks)
     Arithmetic Series, Analogy, Classification, Arithmetical Reasoning, Fraction. Percentage, Ratio, Average, Profit & Loss, Time & Work, Date & Calender, Data Sufficiency, Data Interpretation & Data Verification
   - 2.3 **Spatial Reasoning** (8×1 Mark = 8 Marks)
     Figure Series, Figure Analogy, Figure Classification, Figure Matrix, Pattern Completion, Embedded Images, Image Formation & Analysis, Mirror and Water Images, Cubes and Dices, Paper Folding & Cutting

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Part (II) : - General Technical Subject (50 Marks)

1. Mining Geology 10 %

1.1 Mineral, Crystal, Rocks, Ore and Gangue

1.2 Definition of geological terminology, Geological guides for prospecting of mineral deposits

1.3 Mineral Exploration: Purpose and management; Exploration techniques; Exploration stages; Exploration decision criteria; Exploration drilling; Sample handling and preparation; Computer applications in exploration; Estimation of reserves and grade

1.4 Mining and geological characteristics of deposits

2. Mine Surveying 10 %

2.1 Fundamental definitions and concepts – Principles of survey, units of measurements, scales, Linear Measurements

2.2 Surveying methods: Chain surveying, Traverse Surveying, Leveling, Plane Table Surveying, Contouring and Topographic surveying, Tachometric surveying, Triangulation

2.3 Surveying Instruments: Compass, Level, Theodolite, Electronic Theodolites and Tachometers, GPS, Aerial Photos and Satellite images

2.4 Accuracy and errors in Survey

2.5 Underground Mine Surveying and computer application in mining

3. Mine Development 10 %

3.1 Definition of mining terminology in exploration and exploitation

3.2 Access to mineral deposits, selection of opening methods

3.2.1 Surface Mining development, Physical Environment and effects, Specific Hazards and controls

3.2.2 Underground Mine Development: Shaft sinking, Tunneling, Inclines, Drifting and Raising

3.3 Mine Development tools, machineries and equipments

3.4 Drilling and blasting operation in mine development

3.5 Safety consideration in mine development

4. Mining Methods, Mining Machinery and Transportation 24 %

4.1 Selecting a mining methods / systems

4.2 Open-cast mining methods: Placer / Alluvial mining, Open pit

4.3 Underground mining methods: Room and Pillar methods, Long hole mining, Long wall mining systems, Hydraulic mining systems, Open stopes, Shrinkage stoping, Sublevel stoping, Minor stoping systems, Block caving, Sublevel caving, Cut and Fill stopes, Horizon mining and combined mining methods

4.4 Stowing Practices

4.5 Manual mining versus mechanized mining

4.6 Mine planning and management

4.7 Environment Management Plan

4.8 Mining Machineries in surface and underground mine

4.8.1 Excavation / face machineries

4.8.2 Loading machines

4.8.3 Transportation machineries: Face Transport, Haulage Surface and underground, Economic Analysis of Transportation System

4.9 Mine Pumps

4.10 Hoist and Hoisting systems: Mine Hoist types, Hoist selection by usage, Technical consideration in selecting hoisting system, Hoist accessories, Safety devices

4.11 Safety and productivity

5. Drilling and blasting 6 %

5.1 Principles of drilling
5.2 Drilling and blasting planning
5.3 Drilling machines and accessories - surface, underground
5.4 Drilling Patterns
5.5 Drilling costs – surface and underground
5.6 Explosive, Detonators and Accessories
5.7 Transportation and storage of explosive
5.8 Charging and blasting practice in surface and underground mining
5.9 Ground and air vibrations from blasting
5.10 Controlled blasting techniques
5.11 Safety measures in drilling and blasting
5.12 Chemical Fragmentation

6. Occupational Health & Safety 10 %

6.1 Mine atmospheres and gases
6.2 Underground Environment and Mine Ventilation Planning/Survey
6.3 Mine Lighting
6.4 Mine Hazards: Mine fires, gas, explosions, inundation
6.5 Rescue and recovery operations
6.6 Miners' diseases – fires, gas, explosions, inundations
6.7 Environmental Issues: Pollution and Land reclamation
6.8 Environment Impact Assessment and Environment Management Plan

7. Rock Mechanics 10 %

7.1 Definitions – rock mechanics and rock
7.2 Identification and Classification of Rocks
7.3 Mechanical Properties and behavior of rock
7.4 Strength and mechanics of fractures
7.5 Stress in rock
7.6 Design & stability of excavation – surface & subsurface roof & ground control
7.7 Design and System of Mine Support
7.8 Instrumentation and Monitoring Techniques

8. Mine Economics, Environment & Sustainable use of resource 6 %

8.1 Concept of Mine Economics
8.2 Conservation in mining
8.3 Mine Valuation
8.4 Mining costs and controls
8.5 Cost Benefit Analysis (Economic Analysis) tools
8.6 Market Survey
8.7 Sustainable use of Mineral Resources

9. Miscellaneous 10%

9.1 Mineral Processing
9.1.1 Scope, Objectives and Limitations
9.1.2 Techniques: Crushing, Grinding, Sizing, Classification, Concentration, Location, layout and equipment selection for processing plants
9.2 Quality control in mining
9.3 Site services in mining (workshop, colony etc.)

10. Geology of Nepal 4 %

10.1 General Geology of Nepal
10.2 Mineral Prospect of Nepal