

इन्जिनियर सिभिल

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डा. वा. से. से. सी

जनगरपालिका कार्यालय
बसतपरासी

नेपाल इन्जिनियरिंग सेवा, सिभिल समूह, एयरपोर्ट, विल्डिङ एण्ड मार्टिटेन्ट, जनरल, हाइवे, हाइड्रोपावर इरिगेशन र स्वनिटरी उपसमूहको इ. छैटौं तह (सिभिल जनरल) खुल्ला र बान्तरिक प्रतिपोगितात्मक लिखित परिक्षाको पाठ्यक्रम

पाठ्यक्रम : यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीक्षा लिइने छ

प्रथम चरण : लिखित परीक्षा

द्वितीय चरण : अन्तर्वार्ता

प्रथम चरण : लिखित परीक्षा योजना (Examination Scheme)

पूर्णाङ्क २००

पूर्णाङ्क ३०

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या अंकभार	समय
प्रथम	सेवा सम्बन्धी/सिभिल इन्जिनियरिग	१००	४०	बस्तुगत बहुविकार (Multiple Choice)	१०×१०=१०० <i>20x2=40</i>	१ घण्टा १५ मिनेट
द्वितीय	उपसमूह सम्बन्धी विषय (सि जनरल)	१००	४०	विषयगत (Subjective)	१०×१०=१००	३ घण्टा

द्वितीय चरण : अन्तर्वार्ता

विषय	पूर्णाङ्क	परीक्षा प्रणाली
व्यक्तिगत अन्तर्वार्ता	३०	मौखिक

- लिखित परिक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी हुन सक्नेछ।
- पाठ्यक्रमको प्रथम र द्वितीय पत्रको विषयबस्तु फरक फरक हुनेछन्।
- साथि उल्लेखित उपसमूहको पाठ्यक्रमको प्रथमपत्रको विषयबस्तु एउटै हुनेछ। द्वितीयपत्रको विषयबस्तु उपसमूह अनुसार फरक फरक हुनेछन्।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टै छुट्टै हुनेछ।
- प्रथमपत्रको पाठ्यक्रमको एकाइहरूबाट सोधिने प्रश्नहरूको सख्या निम्नानुसार हुनेछ। द्वितीय पत्रको पाठ्यक्रमको एकाइहरूबाट सोधिने प्रश्नहरूको सख्या द्वितीयपत्रको पाठ्यक्रम उल्लेख भए अनुसार हुनेछ।

प्रश्न संख्या	१	२	३	४	५	६	७	८	९
प्रश्न संख्या	२०	१५	१२	१२	१०	१०	८	८	५

- प्रथम पत्रमा बस्तुगत बहुविकार (Multiple Choice) प्रश्नहरूको सही विना प्रत्येक सही उत्तर बापत १-एक अंक प्राप्त गरिनेछ भने गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अर्थात् ०.२ अंक काट्न गरिनेछ। तर उत्तर नदिएमा त्यसबापत अंक दिइने छैन र अंक काट्न गरिनेछैन।
- द्वितीय पत्रको विषयगत प्रश्नमा साथि तोकिएका १० अंकको प्रश्नहरूको हरेकमा १० अंकको एउटा सासो प्रश्न वा एउटै प्रश्नको दुई वा दुई भन्दा बढी भाग (Two or more Parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिनेछ।
- द्वितीयपत्रको पाठ्यक्रमलाई पार पढ्न खण्ड-इकाइमा विभाजन गरिएको छ। पार पढ्न खण्ड-इकाइको लागि पार पढ्ने उत्तर पुस्तिका दिइनेछ। र परीक्षाको प्रत्येक खण्ड/इकाइको प्रश्नहरूको उत्तर सोही खण्ड/इकाइको उत्तरपुस्तिकामा लेख्नुपर्नेछ।
- यस पाठ्यक्रममा त्रै मुकै लेखिएको भन्नापनि पाठ्यक्रममा परेका ऐन, नियमहरू परीक्षाको मिति भन्दा तीन महिना अगाडि संशोधन भई त्हाईका वा भए परी संशोधन भई। कायम रहेकालाई यस पाठ्यक्रममा रहेको समझनुपर्नेछ।
- प्रथमचरणको लिखित परीक्षाबाट छुटौत भएका उम्मेदवारहरूलाई माथि द्वितीय चरणको अन्तर्वार्तामा सम्मिलित गराइनेछ।

5. Estimating and Costing Valuation and Specification

10%

- 5.1 Types of estimates and their specific uses
- 5.2 Methods of calculation quantities
- 5.3 Key components of estimating norms and rate analysis
- 5.4 Preparation of bill of quantities
- 5.5 Purpose, principles and methods of valuation
- 5.6 Purpose, types and importance of specification

6. Drawing Technique

10%

- 6.1 Drawing sheet composition and its essential components
- 6.2 Suitable scales, site plans, preliminary drawings, working drawings etc
- 6.3 Theory of projection drawing: perspective, orthographic and axonometric projection; first and third angle projection
- 6.4 Drafting tools and equipments
- 6.5 Drafting convention and symbols
- 6.6 Topographic, electrical, plumbing and structural drawings
- 6.7 techniques of free hand drawing

7. Engineering survey

8%

- 7.1 Linear measurements: techniques; chain, tape, ranging rods and arrows; representation of measurement and common scales; sources of errors; effect of slope and slope correction; correction for chain and tape measurements; Abney level and clinometers
- 7.2 Compass and plane table surveying: bearing; types of compass; problems and sources of errors of compass survey; principles and methods of plane tabling
- 7.3 Leveling and contouring: principle of leveling; temporary and permanent adjustment of level; bench marks; booking methods and their reduction; longitudinal and cross sectioning; reciprocal leveling trigonometric leveling; contour interval and characteristics of contours; methods of contouring.
- 7.4 Theodolite traversing: need of traverse and its significance; computation of coordinates; adjustment of closed traverse; closing errors
- 7.5 Uses of Total Station and Electronic Distance Measuring Instruments

8. Engineering Economics

8%

- 6.1 Benefit cost analysis, cost classification, sensitivity analysis, internal rate of return, time value of money; economic equilibrium, demand, supply and production, net present value, financial and economic evaluation

9. Professional practices

5%

- 9.1 Ethics and professionalism: Code of conduct and guidelines for professional engineering practices
- 9.2 Nepal Engineering Council Act, 2055 and regulations, 2056
- 9.3 Relation with clients, contractor and fellow professionals
- 9.4 Public procurements practices for works, goods and services and its importance.

Section A- 30 Marks

1 Transportation and Trail Bridge

30%

- 1.1 Transportation system and its classification.
- 1.2 Transportation planning: rationale, types and its philosophy
- 1.3 Road transport and road construction in Nepal.
- 1.4 Classification of roads in Nepal (NRS and IRS)
- 1.5 General principles of road network planning.
- 1.6 Feasibility study of road projects.
- 1.7 Alignment, engineering survey and its stages
- 1.8 Geometric design of horizontal curve, super elevation, transition curve, vertical curves, right of way
- 1.9 Drainage consideration in roads:
 - 1.9.1 Introduction and design of culverts and minor bridges, cross drainage structures, subsurface drainage system.
- 1.10 Special consideration in Hill roads design:
 - 1.10.1 Problem associated with hill roads construction
 - 1.10.2 Route location, hairpin bends and special structures.
- 1.11 Road pavement: Type of pavement and their applicability in hill roads, Design of pavement.
- 1.12 Bioengineering practices along hill side
- 1.13 Activities and techniques in road construction in rural roads
- 1.14 Basic knowledge on design, construction and maintenance of suspended and suspension bridge in Nepal.
- 1.15 Maintenance, repair and rehabilitation of roads.
- 1.16 Role of social mobilization in rural road development.
- 1.17 low-cost road construction.

Section B- 20 Marks

2. water supply and sanitation.

- 2.1 Rural and community based water supply system.
- 2.2 Water supply sources and their management.
 - 2.2.1 Surface water.
 - 2.2.2 Ground water.
- 2.3 Selection of source.
- 2.4 Water quality and treatment, water demand and supply, source protection
- 2.5 Intakes, collection chamber and break pressure tanks.
- 2.6 Reservoir and distribution system.
- 2.7 Intakes, pipeline design, design of transmission and distribution system, reservoir design.
- 2.8 Pipe and fittings: pipe materials, pipe laying and fittings.
- 2.9 operation and maintenance of water supply systems.
- 2.10 Sanitation, waste water and solid waste management:
 - 2.10.1 On-site sanitation system
 - 2.10.2 Types of sewerage system, design and construction of sewers.
 - 2.10.3 Types, characteristics, sources, quantity, generation, collection transportation and disposal of solid wastes.
 - 2.10.4 Sanitary landfill, incineration, composting etc.
- 2.11 Environmental health engineering- Epidemiology, pathogens (Bacteria, virus



Section C-30 Marks

3 Energy system

10%

- 3.1 Hydrological study, planning and design of small hydropower projects.
- 3.2 Head works, spillways, surge tanks stilling basin etc.
- 3.3 River diversion works.
- 3.4 Biogas- Introduction.
- 3.5 Alternative energy systems in Nepal.

4. Irrigation and River training works.

20%

- 4.1 Status of irrigation development in Nepal.
- 4.2 Methods of irrigation and their suitability.
- 4.3 Design of irrigation canals.
- 4.4 Operation and maintenance of irrigation systems.
- 4.5 Management of Farmers managed irrigation system.
- 4.6 Preventive and remedial measures of water logging.
- 4.7 Flood control, its necessity and flood mitigation measures.
- 4.8 River training works.
- 4.9 Specific considerations in design, operation and management of hill irrigation systems.

Section D- 20 Marks

5. Housing, building and urban planning.

10%

- 5.1 Present status and practices of building construction in Nepal.
 - 1.1 Specific considerations in design and construction of building in Nepal
 - 1.2 Indigenous technology in building design and construction
 - 1.3 Local and Modern building construction material in Nepal
 - 1.4 Community buildings: School and hospital buildings and their design considerations
 - 1.5 Urban planning needs and challenges in Nepal.

2. Technology, Environment and civil society.

10%

- 2.1 Technological development in Nepal.
- 2.2 Promotion of local technology and its adaptation
- 2.3 Environmental Impact Assessment, Initial Environmental Examination, Global-warming phenomena
- 2.4 Types of sources of pollution; point/non-point (for air and water)
- 2.5 Social mobilization in local infrastructure development and utilization in Nepal.
- 2.6 Participatory approach in planning, implementation, maintenance and operation of local infrastructure

द्वितीय पत्रको एकांशको प्रश्नसमाधान विमान्तराक हुनेछ।

द्वितीय पत्रका शब्द	A	B	C		D	
द्वितीय पत्रका एकांश	1	2	3	4	5	6
प्रश्न संख्या	3	2	1	2	1	1