

४. वस्तुगत बहुउत्तर (Multiple Choice) प्रश्नहरूको उत्तर सही दिएमा प्रत्येक सही उत्तर बापत पुर्णाङ्ग प्रदान गरिनेछ, भने गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्ग कट्टा गरिनेछ। तर उत्तर नदिएमा त्यस बापत अङ्ग दिइने छैन र अङ्ग कट्टा पनि गरिने छैन।
५. द्वितीय पत्रको विषयगत प्रश्नका लागि तोकिएका १० अङ्गका प्रश्नहरूको हकमा १० अङ्गको 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 टिप्पणीहरू (Short notes) सोधन सकिने छ।
६. तृतीय पत्र नेपाल प्रहरी सेवा सम्बन्धमा सोधिने प्रश्न संख्या तृतीय पत्रको पाठ्यक्रममा उल्लेख गरिएको छ।
७. प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको अन्तर्वार्तामा सम्मिलित गराइनेछ।
८. अन्तर्वार्ताको अंकभार सम्बन्धमा प्रहरी सेवाको पदमा नियुक्ति र बढुवा गर्दा अपनाउनु पर्ने सामान्य सिद्धान्त, २०६९ को अनुसूची-१९ मा व्यवस्था भए बमोजिम हुनेछ।
९. पाठ्यक्रम लागू मिति :- २०७०/०७/१५ गते।

प्रथम पत्र र द्वितीय पत्र दुवैको लागि

1. Structure Analysis and Design 20%

- 1.1 Stresses and strains; theory of torsion and flexure; moment of inertia
- 1.2 Analysis of beams and frames: Bending moment, shear force and deflection of beams and frames: determinate structure - Energy methods; three hinged systems, indeterminate structures- slope deflection method and moment distribution method; use of influence line diagrams for simple beams, unit load method
- 1.3 Reinforced concrete structures: Difference between working stress and limit state philosophy, analysis of RC beams and slabs in bending, shear, deflection, bond and end anchorage, Design of axially loaded columns; isolated and combined footings, introduction to pre-stressed concrete
- 1.4 Steel and timber structures: Standard and built-up sections: Design of riveted, bolted and welded connections, design of simple elements such as ties, struts, axially loaded and eccentric columns, column bases, Design principles on timber beams and columns

2. Construction Materials 15%

- 2.1 Properties of building materials: physical, chemical, constituents, thermal etc.
- 2.2 Stones-characteristics and requirements of stones as a building materials
- 2.3 Ceramic materials: ceramic tiles, Mosaic Tile, brick types and testing etc.
- 2.4 Cementing materials: types and properties of lime and cement; cement mortar tests
- 2.5 Metals: Steel; types and properties; Alloys
- 2.6 Timber and wood: timber trees in Nepal, types and properties of wood
- 2.7 Miscellaneous materials: Asphaltic materials (Asphalt, Bitumen and Tar); paints and varnishes; polymers
- 2.8 Soil properties and its parameters

3. Concrete Technology 12%

- 3.1 Constituents and properties of concrete (physical and chemical)
- 3.2 Water cement ratio
- 3.3 Grade and strength of concrete, concrete mix design, testing of concrete
- 3.4 Mixing, transportation pouring and curing of concrete
- 3.5 Admixtures
- 3.6 High strength concrete
- 3.7 Pre-stressed concrete technology

4. Construction Management 12%

- 4.1 Construction scheduling and planning: network techniques (CPM, PERT) and bar charts
- 4.2 Contractual procedure and management: types of contract, tender and tender notice, preparation of bidding (tender) document, contractors pre-qualification, evaluation of tenders and selection of contractor, contract acceptance, condition of contract; quotation and direct order, classifications of contractors; dispute resolution; muster roll
- 4.3 Material management: procurement procedures and materials handling
- 4.4 Cost control and quality control
- 4.5 Project maintenance
- 4.6 Occupational health and safety
- 4.7 Project monitoring and evaluation
- 4.8 Quality assurance plan
- 4.9 Variation, alteration and omissions

5. Estimating and Costing Valuation and Specification 10%

- 5.1 Types of estimates and their specific uses
- 5.2 Methods of calculating quantities

5.3 Key components of estimating norms and rate analysis

5.4 Preparation of bill of quantities

5.5 Purpose, types and importance of specification

5.6 Purpose, principles and methods of valuation

6. Drawing Techniques 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 conventions and symbols

6.6 Topographic, electrical, plumbing and structural drawings

6.7 Techniques of free hand drawing

7. Engineering Survey 8%

7.1 Introduction and basic principles

7.2 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

7.3 Compass and plane table surveying: bearings; types of compass; problems and sources of errors of compass survey; principles and methods of plane tabling

7.4 Leveling and contouring: Principle of leveling; temporary and permanent adjustment of level; bench marks; booking methods and their reductions; longitudinal and cross sectioning; reciprocal leveling; trigonometric leveling; contour interval and characteristics of contours; methods of contouring

7.5 Theodolite traversing: need of traverse and its significance; computation of coordinates; adjustment of closed traverse; closing errors

7.6 Uses of Total Station and Electronic Distance Measuring Instruments

8. Engineering Economics 8%

8.1 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 procurement practices for works, goods and services and its importance

वस्तुगत बहुउत्तर नमूना प्रश्नहरू (Sample questions)

1. The most reliable estimate is

- (A) Detailed estimate (B) Preliminary estimate (C) Plinth area estimate (D) Cube rate estimate

Correct Answer:- (A)

2. The first stage of construction project is

- (A) Preparation of estimate (B) Survey of the site (C) Preparation of tender (D) Initiation of planning

Correct Answer:- (D)

3. Slump test of concrete is a measure of its

- (A) Consistency (B) Compressive strength (C) Tensile strength (D) Impact value

Correct Answer:- (A)

4. Internal rate of return (IRR) is one of the indicators of an investment project and is used for the selection of it. The project is financially acceptable

- (A) If the IRR is greater than the borrowing rate (B) If the IRR is less than the borrowing rate (C) If the IRR is equal to the borrowing rate (D) Without calculating the IRR

Correct Answer:- (A)

5. The back staff reading on a Bench Mark (B.M.) of reduced level 500.00m is 2.685m. If foresight reading on a point is 1.345m the reduced level of the point is

- (A) 502.685m (B) 501.345m (C) 501.340m (D) 504.030m

Correct Answer:- (C)

6. An under reinforced section means

- (A) Steel is provided at the under side only (B) Steel provided is insufficiently (C) Steel is provided on one face only (D) Steel will yield First

Correct Answer:- (D)

7. Nepal Engineering Council is an autonomous body formed under NEC act.....

- (A) 2053 (B) 2054 (C) 2055 (D) 2056

Correct Answer:- (C)

8. The strength of a stone depends on

- (A) Chemical composition (B) Degree of packing of constituents (C) Structure of rock (D) All of the above

Correct Answer:- (D)

9. Lacing in steel structures are provided

- (A) to reduce the slenderness ratio of a long strut (B) for connecting together two or more sections (C) through out the length of strut as far as practicable (D) all of the above

Correct Answer:- (D)

1. Mention the different types of the stone walls that are used in a building. Describe their suitability in foundation and superstructure.
2. Describe the different bonds that are used in brick walls. Write their usefulness compared to hollow concrete blocks.
3. Write about the qualities of good sand used for building. Discuss the usefulness of the lime and cement sand mortar.

-समाप्त-