

Pokhara University Service Commission
Syllabus for Civil Engineer (Assistant Administration: Technical)
Academic Qualification: Bachelor of Civil Engineering

Time:4hr

Full marks: 100
Pass mark: 50

Part I: 90

1. General and Technical Administration

7+8 = 15

- 1.1 Technological development in Nepal, promotion of local technology and its adaptation.
- 1.2 Importance of public administration, Infrastructural planning of public and community buildings, needs of participatory approach in planning.
- 1.3 Financial administration, procurement plan, budgeting, public auditing, technical auditing, resource mobilization, administrative approval, technical sanction, competent authority
- 1.4 Public Procurement Act, Public Procurement Regulation
- 1.5 National Building Code of Nepal, Building Bylaws.

2. Housing and Building.

10

- 2.1 Present status and practices of building construction, Specific considerations in design and construction of buildings in Nepal.
- 2.2 Indigenous technology in building design and construction. Local and Modern building construction material in Nepal.
- 2.3 Community buildings: School, College and hospital buildings and their design considerations. Features of Academic, Administration, Library Building. Repair and maintenance of public infrastructure

3. Construction Materials and Concrete Technology

10

- 3.1 Properties of building materials: physical, chemical, constituents, thermal etc.
- 3.2 Timber and wood: timber trees in Nepal, types and properties of wood
- 3.3 Miscellaneous materials: Asphaltic materials (Asphalt, Bitumen and Tar); paints and varnishes; polymers
- 3.4 Cementing materials: types and properties of lime and cement; cement mortar tests
- 3.5 Mixing, transportation pouring and curing of concrete
- 3.6 Constituents and properties of concrete, water cement ratio, grade and strength, mix design and testing of concrete

4. Construction Project Management

10x2= 20

- 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, contractor's 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, Cost control and quality control
- 4.4 Project monitoring and evaluation, Quality assurance plan, Variation, alteration and omissions
- 4.5 Standard Bid Documents, Direct Purchase, Sealed Quotation, Safety in Construction

5. Estimating and Costing, Valuation and Specification

10

- 5.1 Importance and Types of estimates and their specific uses
- 5.2 Methods of calculating quantities, Units of measurements
- 5.3 Key components of estimating norms and rate analysis
- 5.4 Preparation of bill of quantities, abstracting of cost, Running bills, Final bills
- 5.5 Purpose, types and importance of specification
- 5.6 Purpose, principles and methods of valuation
- 5.7 Lay-out Plan, Contingencies, Worked Charged Establishment, Provisional Sum, Capital Cost

6. Drawing Techniques

5

- 6.1 Importance and necessity of Drawings,
- 6.2 Drawing sheet composition and its essential components
- 6.3 Suitable scales, site plans, preliminary drawings, final drawing, working drawings, as built drawing.
- 6.4 Topographic, electrical, plumbing and structural drawings

7. Engineering Survey

5

- 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 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

8. Engineering Economics 5

- 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 and other institutions 10

- 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
- 9.5 Introduction to: PPMO, PWD, FIDIC, NSET, DUDBC, BOOT, FCAN, ILO, Nepal Engineering Council, Nepal Engineers Association

Part II: 10

10. Higher Education and Pokhara University 10

- 10.1 Education policy of Nepal, Status of Higher Education in Nepal, UGC and Concept of multi Universities in Nepal
- 10.2 Role of Pokhara University in Higher Education
- 10.3 Degree and Programs in the affiliated and constituent college of Pokhara University
- 10.2 Act of Pokhara University