



नेपाल विद्युत प्राधिकरण

प्राविधिक सेवा, सिभिल समूह, सर्भे उप-समूह, तह-द, सहायक प्रबन्धक पदको प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

१. लिखित परीक्षाको विषय, पूर्णाङ्क, परीक्षा प्रणाली, प्रश्न संख्या, अङ्कभार र समय निम्नानुसार हुनेछ ।

पत्र	विषय	पूर्णाङ्क	परीक्षा प्रणाली		प्रश्न संख्या	प्रति प्रश्न अङ्कभार	सयम
प्रथमपत्र	सेवा सम्बन्धी	७०	विषयगत	छोटो उत्तर	८	५	२ घण्टा
				लामो उत्तर	३	१०	
द्वितीयपत्र	व्यवस्थापकी ज्ञान	३०	विषयगत	छोटो उत्तर	३	५	१ घण्टा
				समस्या समाधान	१	१५	

२. प्रथमपत्र र द्वितीय पत्रको परीक्षा २ पटक गरेर हुनेछ । प्रथमपत्रको परीक्षा सकिए पछि, द्वितीयपत्रको परीक्षा तत्काल हुनेछ ।
३. परीक्षाको माध्यम नेपाली वा अङ्ग्रेजी भाषा हुनेछ ।
४. सामान्यतः प्रत्येक शीर्षकको अङ्कभार तोकिए बमोजिम हुनेछ ।

प्रथमपत्र : सेवा सम्बन्धी (70)

1. Fundamental of Surveying (5)

- General background of surveying
- Application of surveying in water resources development
- Hydrographic surveying
- Role of surveying and mapping for economic development projects.

2. Survey Management (5)

- Planning of survey teams for various projects.
- Management of teams and equipment to dispatch in the field.
- Problems of field surveying in Nepal.
- Skill of team leader/surveyor.
- Professional ethics and code of conduct of a surveyor.
- Verification of field data and digital map preparation.
- Survey report preparation.
- Local coordination/public relation during field surveying.
- Safety of personnel and equipment in the field.

3. Geodetic Surveying (7)

- Trigonometrical survey.
- Establishment of horizontal and vertical control.
- Checking of 3rd and 4th order control points.
- Knowledge of spherical and rectangular coordinate systems.
- Transformation of coordinates.
- Geodetic datum and reference ellipsoid.
- Coordinate system in Nepal

4. Global Positioning System (GPS) (5)

- Introduction to satellite geodesy.
- Working principle of GPS.
- GPS signals and its positioning.
- GPS observations: Static and Kinetic.
- Geocentric coordinates and WGS – 84.
- GPS surveying techniques.
- Data processing.

5. Levelling Survey (3)

- Definition of terms.
- Principles of levelling.
- Establishment of 3rd and 4th year levelling.
- Field work and computation.
- Adjustment of errors.

6. Remote Sensing (3)

- General concept of remote sensing.
- Energy Interaction with earth surface factures.
- Data acquisition and interpretation.
- Application of remote serving.

7. **Topographical Surveying/Photogrammetry (7)**
 - a. General concept of photogrammetry.
 - b. Introduction and concepts of digital photogrammetry.
 - c. Function and types of aerial camera.
 - d. Aerial photographs and their types.
 - e. Scale of aerial photograph.
 - f. Flight planning and photo index.
 - g. Elements of photo interpretation, rectification, mosaicking.
 - h. Stereoscopic vision.
 - i. Use of aerial photograph for map revision.
8. **Cartography (5)**
 - a. General cartographic concepts.
 - b. Comparison between conventional and digital cartography
 - c. Map compilation and productions.
 - d. Elements of Topographical maps.
 - e. Use of UTM modified projections in Nepal.
 - f. Numbering system of small and large scale maps in Nepal.
 - g. Map reproduction, enlargement and reduction.
9. **Geographical Information systems (GIS) (5)**
 - a. Basic concept of GIS.
 - b. Data structure for GIS, Raster and Vector data.
 - c. Data format conversions.
 - d. Map overlay analysis.
 - e. Applications of GIS.
10. **Cadastral Surveying (7)**
 - a. Importance of cadastral survey for land acquisition.
 - b. Process of cadastral surveying.
 - c. Elements of cadastral surveying.
 - d. Cadastral Map grading.
 - e. Methods of area calculation.
 - f. Map edge matching error and adjustment.
 - g. Knowledge to acquire land and provide compensation.
 - h. Land registries: Land record (moth) and land ownership certificate (Lalpurja).
11. **Use of Survey Instruments (3)**
 - a. Total Station Theodolite, EPM, Level, Tachometer, Plane table set, Micro tic Telescopic Alidade, GPS Receivers.
 - b. Aerial camera, Process camera, Digital Camera, Scanner, Stereo plotter, Stereoscopic, Printing Press, Scribing tools, drawing equipment's.
12. **Economic and Financial Analysis of Hydropower Scheme (5)**
 - a. Methods of economic/financial analysis, such as cost-benefit ratio, internal rate of return, net present worth, payback period, minimum attractive rate of return and their application.
 - b. Risk analysis, tariff structure.
 - c. Investment decision, interest and time value of money.
13. **Power sector Development (7)**
 - a. Hydropower potential of Nepal and power sector development.
 - b. Role of Nepal Electricity Authority and other related institutions-Ministry of Water Resources, Water & Energy Commission Secretarial, Electricity Development Centre and Electricity Tariff Fixation Commission.
 - c. Hydropower policy, 2058.
 - d. Water Resource Act, 2049.
 - e. Electricity Act, 2049.
 - f. Nepal Electricity Authority (NEA) Act, 2041 (With amendments)
 - g. Land Acquisition Act, 2034.
 - h. Environment Protection Act, 2053, Environment Protection Regulations, 2054.
 - i. NEA Electricity Theft Control Act, 2058.
14. **Institutional Know How (3)**
 - a. General knowledge of Nepal Electricity Authority, its organizational structure and function of various business groups.
 - b. General knowledge of various power plants of Nepal, their types, salient features and their geographical location.
 - c. General knowledge on Nepalese Power Transmission System, Voltage levels and lengths, Export-import inks for power exchange with India.

द्वितीय पत्र : व्यवस्थापकीय ज्ञान (30)**1. Principle of surveying (2)**

- Objective of Surveying.
- General Principles of Surveying.
- Classification of Surveys based upon nature and object of Field Surveying.
- Digital mapping.

2. Survey methods and Measurements (2)

- Chain survey.
- Compass Survey.
- Plane table Survey.
- Linear and angular measurements.
- Triangulations, Trilateration, traversing, Instruction, Resection and GPS coordinate.
- Tachometry Field procedure preparation of sketch, numbering, observation, recording of details & contouring.
- Field observations and checking.

3. Computation, Adjustment, Area and volume calculation (3)

- Methods of determining and calculating Area and volume.
- Kinds and sources of errors, accuracy, precision, and theory of probability, permissible error, adjustment of errors.
- Coordinate computation and level calculations.

4. Engineering Survey (2)

- General concept of identification and survey of Hydropower project area.
- Establishment of horizontal and vertical control points.
- Hydrographic survey concept, sedimentation and bathymetric Survey.
- Curve setting horizontal, vertical and simple circular curves.
- Power Transmission line survey.
- Roads surveying: location survey plan and profile, cross section and longitudinal section.
- Road alignment survey: Gradient, cutting, filling curve.

5. Construction survey (2)

- Hydro-power station: Intake, Reservoir, Dam Powerhouse.
- Transmission line and distribution line.
- Tunnel alignment.

6. Digital Mapping (2)

- Capture and handling of digital data.
- Conversion of raster data to vector data and vice-versa.
- Knowledge of Auto CAD, Arch INFO, Arch VIEW.
- GIS Map overlay and analysis.

7. Organization and management (2)

Internal organization, Management Information System, Motivation, Leadership and team work, Decision making, corporate planning and strategic management, Job description, Job analysis, Performance appraisal, Auditing and inventory control, Personnel Management, Familiarization with procurement guidelines and standards of world Bank, ADB, Preparations of contract documents, specifications condition of contract and other contractual procedures.

8. समस्या समाधान (15)

व्यवस्थापकीय कार्यसँग सम्बन्धित कुनै एउटा समस्या दिईनेछ । प्रचलित ऐन, नियमको परिधि र अवस्था समेतलाई विचार गरि दिईएको समस्याको निम्न आधारमा उपयुक्त समाधान र सुझाव प्रस्तुत गर्नु पर्नेछ ।

(क) समस्याका खास खास कारणहरू दर्शाउने ।

(ख) समस्या समाधानका लागि सुझावहरू प्रस्तुत गर्ने ।

(ग) प्रस्तुत सुझावहरू कार्यान्वयन गर्दा त्यसबाट पर्न सक्ने सकारात्मक प्रभावहरू उल्लेख गर्ने ।

द्रष्टव्य:-

पाठ्यक्रममा राखिएका संविधान, ऐन, नियम र विनियमहरू परीक्षा हुनु भन्दा ३ महिना अगाडि संशोधन वा खारेज भई त्यसको सट्टामा हाल प्रचलनमा रहेकालाई सोही अनुरूप पाठ्यक्रममा समावेश भएको मानिनेछ ।

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