चिलिमे जलविद्युत कम्पनी लिमिटेड

प्राविधिक सेवा, सिभिल समूह, तह-७, बरिष्ठ सर्भेयर पदको
खुला प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

१. शैक्षिक योग्यताः चिलिमे जलविद्युत कम्पनी लिमिटेड कर्मचारी सेवा शर्त विनियमावलीमा व्यवस्था भए अनुसार।
२. लिखित परीक्षाको विषय, पूर्णाङ्क, परीक्षा प्रणाली, प्रश्न संख्या, अंकभार र समय निम्नानुसार हुनेछ।

पत्र	विषय	परीक्षा प्रणाली		प्रश्न संख्या	प्रति प्रश्न अंकभार	पूर्णांक	समय
प्रथम	सेवा सम्बन्धी जनरल सर्भे	वस्तुगत बहुउत्तर		३०	०.५	१५	३० मिनेट
द्वितीय	सेवा सम्बन्धी	विषयगत	लामो उत्तर	२	१०	७०	२ घण्टा ३० मिनेट
			छोटो उत्तर	१०	५		
अन्तर्वार्ता						१५	

३. वस्तुगत बहुउत्तर परीक्षा प्रणालीमा प्रत्येक पश्नका चार वटा सम्भाव्य उत्तर दिइने छ। प्रश्नको उत्तर लेख्दा केरमेट गरेको, दोहोरो लेखेको, सच्याएको, निर्दिष्ट स्थानभन्दा अन्यत्र लेखेको वा उत्तर नै सारेकोलाई गल्ती मानिनेछ।
४. बस्तुगत बहुउत्तरमा प्रत्येक गलत उत्तर वापत सो प्रश्न वापत पाउने अंकको ०.२ (बीस प्रतिशत २०%) का दरले सो विषयमा पाएको कूल प्राप्तांकबाट घटाइनेछ।
५. कालो/नीलो मसी मात्र भएको डटपेन/कलमले उत्तरको लागि निर्धारित कोठाका पश्नमा क,ख,ग,घ मध्ये एउटा मात्र सही उत्तर स्पष्ट रूपले लेख्नुहोला। पेन्सिलले लेखेकोलाई मान्यता दिइने छैन।
६. प्रत्येक पत्रको न्यूनतम ४० प्रतिशत उत्तीर्णाङ्क हुनेछ।
७. प्रथम र द्वितीयपत्रको परीक्षा २ पटक गरेर हुनेछ। प्रथम पत्रको परीक्षा सकिएपछि द्वितीयपत्रको परीक्षा तत्काल हुनेछ।
८. द्वितीयपत्रको लिखित परीक्षाको माध्यम नेपाली वा अंग्रेजी भाषा हुनेछ।
९. सामान्यतः प्रत्येक शिर्षकको अंकभार तोकिए बमोजिम हुनेछ।

<u>प्रथमपत्र र द्वितीयपत्रको पाठ्यक्रम बिवरणः</u>

1. Fundamentals of Surveying [1X0.5]

1.1. Background of surveying
1.2. Objective of surveying
1.3. Principles of surveying
1.4. Disciplines of surveying
1.5. Linear measurement techniques
1.6. Principle and methods of chain surveying
1.7. Types, sources of errors in measurements, precision and accuracy
1.8. Principle and methods of plain table surveying
1.9. Advantages and disadvantages of plain table surveying
1.10. Bearings, types and bearing systems, magnetic declination
1.11. Local attraction in compass survey
1.12. Compass traversing, computation of bearing, errors and adjustments

1.13. Application of surveying in hydropower development

1.14. Plotting and Mapping

2. Levelling [2X0.5]

2.1. Principle of levelling

2.2. Methods of computation of reduced level

2.3. Two peg test

2.4. Differential levelling, fly levelling, reciprocal levelling

2.5. Profile levelling, cross sectioning

2.6. Sources of errors in levelling

2.7. Errors, precision and adjustment of errors

3. 3. Traversing [2X0.5]

3.1. Measurement of horizontal and vertical angles

3.2. Closed traverse and linked traverse

3.3. Horizontal and vertical control of traverse

3.4. Computation of angles, bearings, latitudes and departures, independent coordinates

3.5. Errors, precision and adjustment in angles, bearings and coordinates

3.6. Plotting of traverse and topographic map

4. Tachometry [1X0.5]

4.1. Principle of tachometry

4.2. Stadia method, tangential method and subtense bar method

5. 5. Trigonometric levelling [1X0.5]

5.1. Determination of height and distances of inaccessible objects

5.2. Reciprocal trigonometric levelling

6. Contouring [2X0.5]

6.1. Characteristics of contouring

6.2. Method of contouring

6.3. Plotting of contours and detailing

6.4. Uses of contour maps

7. Orientation [1X0.5]

7.1. Analytical intersection and resection

7.2. Two point and three points resection and their significance

8. 8. Triangulation and Trilateration [1X0.5]

8.1. Principles of triangulation and trilateration

8.2. Computations and adjustment of triangulation and trilateration

9. Computation of area and volume [1X0.5]

9.1. Area by ordinates, coordinates and double meridian distance method

9.2. Volume by average end area, primordial formula, trapezoidal rule, and Simpson's 1/3 rule.

10. Photogrammetry and remote sensing [1X0.5]

10.1. Types of aerial photography

10.2. Scale and coverage

10.3. Relief displacement

10.4. Aerial photo processing

10.5. Application of aerial photograph

10.6. Concept of remote sensing

10.7. Types of remote sensing

10.8. Image processing and interpretation

10.9. Electromagnetic radiation

10.10. Application of remote sensing

11. Global positioning system (GPS) [1X0.5]

11.1. Introduction to space geodesy

11.2. Principle of GPS

11.3. GPS signals and positioning

11.4. Geometric coordinates and WGS 84

11.5. GPS data processing

12. Cartography [1X0.5]

12.1. Concept of cartography

12.2. Scope of cartography

12.3. Conventional and digital cartography

12.4. Map compilation and production

12.5. Geographic and cartographic scale

12.6. Topographic cartography

12.7. Data acquisition, processing, analysis, visualization and presentation

12.8. Map reproduction, enlargement and reduction

13. Geographical information system (GIS) [3X0.5]

13.1. Introduction to GIS
13.2. GIS component
13.3. Data model
13.4. GPS data processing
13.5. GIS operation and spatial analysis
13.6. Geometric coordinates and WGS 84
13.7. Application of GIS

14. Cadastral surveying [1X0.5]

14.1. Cadastral concepts
14.2. Principles of cadastral surveying
14.3. Cadastral survey methods
14.4. Land laws
14.5. Land acquisition and compensation

15. Geodesy [1X0.5]

15.1. Coordinate system and star coordinate updating
15.2. Mathematical model for latitude, longitude and azimuth
15.3. Transformation between local and global system
15.4. Celestial system

16. 16. Plotting and mapping [1X0.5]

16.1. Plotting of topographic map, L-section, Cross - section
16.2. Software of plotting and mapping
16.3. Mapping for hydropower project

17. 17. Use of survey instrument [1X0.5]

17.1. Plane table, Telescopic alidade, Compass, Level, Theodolite, EDM, Total station, GPS receiver
17.2. Aerial camera, process camera, digital camera, scanner, stereo plotter, stereoscope, scribing tools, drawing equipment

18. Tunnel survey [3X0.5]

18.1. Alignment of the centerline of the tunnel
18.2. Transferring the alignment under ground
18.3. Transferring the levels under ground

19. Digital mapping [1X0.5]

19.1. Capture and handling of digital data

19.2. Conversion of raster data to vector and vice-versa

19.3. Knowledge of Auto-CAD, Arch-INFO, Arch-VIEW

19.4. Photogrammetry

20. Construction Survey [2X0.5]

20.1. Hydropower station: Intake, reservoir, dam, powerhouse

20.2. Road alignment survey: gradient, curve, cutting, filling

20.3. Curve: types of curve, setting out of simple circular curve and vertical curve

21. Economic and financial analysis of hydropower scheme [2X0.5]

21.1. Simple interest and compound interest, Effective rate of interest, Minimum attractive rate of return, Time value of money

21.2. Payback period, cost benefit ratio, internal rate of return, present worth, future worth, annual worth

21.3. Risk analysis, tariff structure

21.4. Investment decision

द्रष्टव्यः - पाठ्यक्रममा राखिएका संविधान, ऐन, नियम र विनियमहरु परीक्षा हुनु भन्दा ३ महिना अगाडिसम्म संशोधन वा खारेज भएकालाई सोही अनुरुप पाठ्यक्रममा समावेश भएको मानिने छ।

- लिखित परीक्षा उत्तीर्ण हुनेहरूको मात्र अन्तरवार्ता हुनेछ।