SAMPLE PAPERS

DIPLOMA FIFTH SEMESTER EXAMINATION 2025 (JUT)

MODERN SURVEYING

DIPLOMA WALLAH

CLICK HERE TO VISIT DIPLOMA WALLAH WEBSITE

Full Marks: 70 marks | Time: 3 Hours

Instructions:

- Question No. 1 is compulsory.

- Answer any **FOUR** questions from the remaining (Q.2 to Q. 7 marks).

Q.1 Multiple Choice Questions (Compulsory) [2 × 7 = 14 Marks]

(i) The process of turning the telescope about the vertical axis in a horizontal plane is known as:

(a) Transiting

 (b) Plunging

(c) Swinging

 (d) Reversing

(ii) In a Total Station, the data is stored in:

(a) Pen drive

 (b) Microprocessor

(c) Data collector

 (d) Internal memory

(iii) The multiplying constant (k) of a tacheometer is usually:

(a) 100

 (b) 10

 (c) 50

(d) 0

(iv) A curve of varying radius introduced between a straight line and a circular curve is called:

(a) Compound Curve

 (b) Vertical Curve

 (c) Transition Curve

(d) Reverse Curve

(v) Which of the following is an active remote sensing system?

(a) LANDSAT

(b) SPOT

 (c) RADAR

(d) IRS

(vi) The contours of a ridge line are:

(a) U-shaped with convexity towards lower ground

(b) V-shaped with convexity towards lower ground

(c) U-shaped with convexity towards higher ground

(d) Circular

(vii) The minimum number of satellites required for a GPS receiver to determine a 3D position (Latitude, Longitude, Altitude) is:

(a) 2

 (b) 3

(c) 4

 (d) 5

Q.2 (A) Explain the step-by-step procedure of Temporary Adjustments of a Transit Theodolite (Setting up, Centering, Leveling, Focusing). [7 Marks]

Q.2 (B) Describe the procedure of measuring a Horizontal Angle by the Repetition Method. List two errors eliminated by this method. [7 Marks]

Q.3 (A) What is a Closing Error in a traverse? Explain Bowditch's Rule (Compass Rule) and Transit Rule for adjusting the closing error. [7 Marks]

Q.3 (B) (Numerical) A tacheometer was set up at station A and readings were taken on a vertically held staff at B.

- k = 100, C = 0.5.

- Vertical Angle = +6° 00′

- Staff Readings = 1.000, 1.500, 2.000.

- RL of Instrument Axis at A = 150.00 m.

Find the Horizontal Distance (D) and RL of B. [7 Marks]

Q.4 (A) Derive the expressions for Horizontal Distance (D) and Vertical Component (V) using the Fixed Hair Method when the line of sight is Inclined and the staff is held Vertically. [7 Marks]

Q.4 (B) Draw the Block Diagram of a Total Station. Explain its Working Principle and the difference between Data Gathering and Data Processing. [7 Marks]

Q.5 (A) Derive the formula to find the R.L. of the top of a tower when the base is inaccessible and the two instrument stations are in the same vertical plane. [7 Marks]

Q.5 (B) Explain the following functions of a Total Station: (i) REM (ii) MLM (iii) Resection. [7 Marks]

Q.6 (A) Define Contour Line. Draw neat sketches and explain the Characteristics of Contours for: (a) Hill, (b) Depression, (c) Ridge Line. [7 Marks]

Q.6 (B) Define GIS. List and explain its 5 Key Components (Hardware, Software, Data, People, Methods). [7 Marks]

Q.7 Write Short Notes on (Any FOUR): [3.5 × 4 = 14 Marks]

(a) Lidar

(b) Face Left vs Face Right Observation

(c) Drone Surveying

(d) Contour Interval vs Horizontal Equivalent

(e) Anallatic Lens