

SAMPLE PAPERS
DIPLOMA FIRST SEMESTER EXAMINATION 2025 (JUT)
BASIC SURVEYING
DIPLOMA WALLAH

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Instructions:

1. **Question No. 1 is compulsory.** It contains 7 MCQs of 2 marks each.
 2. Answer any **FOUR** questions from the remaining (Q.2 to Q.7).
 3. All questions (Q.2 to Q.7) carry 14 marks each (typically divided into 7+7).
 4. Use neat sketches wherever necessary.
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Q.1 Compulsory (7 × 2 = 14 Marks)

1. In a field book, the entries are recorded starting from:
 - a) Top of the page
 - b) Bottom of the page
 - c) Left margin
 - d) Right margin
2. The sensitivity of a bubble tube depends on:
 - a) Radius of curvature
 - b) Diameter of the tube
 - c) Length of the bubble
 - d) All of the above
3. Which of the following represents a bridge in conventional signs?
 - a) Two parallel lines with a gap
 - b) Two parallel lines with outward cross-hatching
 - c) A circle with a cross
 - d) A rectangle with an arrow
4. "Systematic Errors" are also known as:
 - a) Cumulative Errors
 - b) Compensating Errors
 - c) Gross Errors
 - d) Accidental Errors

5. The line passing through the intersection of cross-hairs and the optical center of the objective is:
- Axis of bubble tube
 - Line of Collimation
 - Vertical Axis
 - Horizontal Axis
6. Which chain is 100 feet long and has 100 links?
- Engineer's Chain
 - Metric Chain
 - Revenue Chain
 - Gunter's Chain
7. Ranging is the process of:
- Measuring distance
 - Establishing intermediate points on a straight line
 - Measuring angles
 - Calculating RL

Theory Questions (Attempt any FOUR)

Q.2 A. Re-explain the Principle "Work from Whole to Part." Why is it essential to start from a large area? (7 Marks)

B. Discuss the importance of accuracy in surveying and why a point should be located by at least two measurements. (7 Marks)

Q.3 A. Numerical: Solve a leveling traverse problem using the **H.I. Method** for 6 points including 2 change points. (7 Marks).

B. Explain the procedure for Indirect Ranging with a suitable sketch. (7 Marks)

Q.4 A. Compare the construction features of an Auto Level and a Dumpy Level. (7 Marks) ³⁸

B. Given FB of AB = 45° , BC = 120° , CD = 200° , DE = 280° Calculate the interior angles. (7 Marks)

Q.5 A. Numerical: Given FB and BB of a closed traverse, detect the stations affected by local attraction and find corrected bearings. (7 Marks) ⁴⁰

B. Detailed comparison between Plane and Geodetic Surveying. (7 Marks) ⁴¹

Q.6 A. Explain "Mistakes" vs "Systematic Errors" with examples related to chaining. (7 Marks) ⁴²

B. Write the formulas for Correction due to Temperature and Pull applied to a tape. (7 Marks) ⁴³

Q.7 Write Short Notes on any FOUR (3.5 × 4 = 14 Marks) ⁴⁴

- a) Rise and Fall method advantages
- b) Prismatic Compass vs Surveyor Compass (Prism function)
- c) Temporary Adjustments of a Dumpy Level
- d) Fly Leveling and its purpose
- e) Offset Rod and its use



Solutions for Paper 3

MCQ Answer Key

1. b) Bottom of the page
2. d) All of the above
3. b) Two parallel lines with outward cross-hatching
4. a) Cumulative Errors
5. b) Line of Collimation
6. a) Engineer's Chain
7. b) Establishing intermediate points on a straight line

Model Answers

- **Q.4B Interior Angles:** Angle B = FB of BC - BB of AB. (Remember: $BB = FB \pmod{180}$).
- **Q.7d Fly Leveling:** A type of leveling used to connect a benchmark to a starting station or to check accuracy at the end of a day's work. ⁴⁶

