

FACULTY OF ENGINEERING & TECHNOLOGY

SE(Civil) Examination - Jan – 2015

Surveying-I (Revised)

[Time: THREE Hours]

[Max. Marks: 80]

"Please check whether you have got the right question paper."

- i) Question no 1 and question no 6 are compulsory.
- ii) Solve any two questions from the remaining questions from each section.
- iii) Assume suitable data if necessary.
- iv) Figures to the right indicate full marks.

SECTION- A

- Q1 Solve (Any five) (10)
1. State the basic principles of surveying.
 2. Explain line ranger.
 3. Enumerate the various types of bench marks.
 4. Explain profile levelling.
 5. Explain tape corrections.
 6. What is optical square?
 7. What is local attraction?
 8. State "three point problem".
 9. Explain "orientation by back sighting".
 10. Define sensitivity of level tube.
- Q2 a) How is graphical adjustment of closing error done in closed traverse? (07)
- b) A 30 m chain was found to be 12 cm too long after chaining a distance of 1800m. It was found to be 25 cm too long at the end of the day's work after chaining a total distance of 3500 m. Find the true distance, if the chain was correct, before the commencement of the work. (08)
- Q3 a) Following Bearing were observed with a compass calculate the interior angles. (08)
- | Line | Fore bearing |
|------|------------------|
| AB | $60^{\circ}30'$ |
| BC | 122° |
| CD | 46° |
| DE | $205^{\circ}30'$ |
| EA | 300° |
- B) Explain surveyors compass and prismatic compass in detail. (07)
- Q4 a) The following staff readings were observed successively with a level. The instrument having been moved after third. Sixth and eight readings: 2.225, 1.605, 0.965, 2.090, 2.845, 1.200, 1.650, 1.045, 2.760, 1.340, 2.665, 2.135m enter the above readings in a page of a level book and calculate the R.L of points of the first reading was taken with a staff held on a bench mark of 530 m. (08)
- b) Explain in detail the interpolation of contours. (07)
- Q5 a) Explain Bessel's method in detail. (08)
- b) Explain graphical method of solving "Three point problem" (07)

SECTION B

- Q6 Solve (Any five) (10)
- 1 Explain direct angles and deflection angles.
 2. Explain swinging and transiting a theodolite.
 3. Enumerate fundamental lines of transit theodolite.
 4. Explain principle of anallatic lens.
 5. Give the advantages of tachometric survey
 6. Differentiate between clamp screw and tangent screw.
 7. What are the tachometric constants?
 8. What is tangential method of tachometric surveying?
 9. Explain trapezoidal rule.
 10. Explain consecutive coordinates & independent coordinates.
- Q7 a) Explain the theory and use of a planimeter. (08)
- b) Derive the expression for side hill two level section. (07)
- Q8 a) Explain the procedure for measuring magnetic bearing of line. (07)
- b) Write a note on gale's traverse table. (08)
- Q9 Observations were taken with a tachometer from station A. The vertical angle from station A to the (08)
bench mark was $+5^{\circ}10'$ and the staff reading on the bench mark of R.L 500m was 1.510m. Again
from station A an observation was taken towards station B, with a vertical angle of $8^{\circ}40'$. The
observations on the staff kept at B were. 2.100, 1.900, 1.695m. determine the R.L. of point B.
- b) What is an anallatic lens, explain the principle involved. (07)
- Q10 a) Explain the med ordinate rule and average ordinate rule for working out areas (08)
- b) Derive an expression for prismoidal formula for volume. (07)