

D 23513

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Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
DECEMBER 2011**

Civil Engineering

CE 04 305—SURVEYING—II

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

1. (a) Derive an expression for the distance between the anallactic lens and the object glass.
- (b) Determine the constants of a tacheometer if for the line of collimation horizontal, the stadia readings for the staff held at 25 m and 50 m are respectively 1.900, 1.410 and 2.22, 1.23.
- (c) What are the factors that affect the selection of triangulation stations ?
- (d) What is a satellite station ? How would you reduce the horizontal angles ?
- (e) What is meant by vertical curve and where is it adopted ?
- (f) Write short notes on Location Survey.
- (g) Write short notes on Echo Sounder.
- (h) Define super-elevation and derive an expression for the same.

(8 × 5 = 40 marks)

Part B

2. (a) (i) Write short notes on stadia tables and stadia diagrams. (8 marks)
- (ii) The horizontal angle subtended at the theodolite station by a subtense bar with vanes 3 m apart is 10'40". Calculate the horizontal distance between the theodolite and the subtense bar. (7 marks)

Or

- (b) (i) What are different methods of designation of a curve ? (6 marks)
- (ii) Derive a relationship between the radius and the degree of curve. (9 marks)
3. (a) What are different types of arrangements used in triangulation ? List out their relative merits and demerits. Explain briefly about the grid iron system. (15 marks)

Or

- (b) Explain elaborately the signals, their qualities, classification with neat sketches. (15 marks)
 4. (a) Discuss various methods of locating soundings in hydrographic surveying. (15 marks)
- Or*
- (b) Discuss the solution of a right-angled spherical triangle using Napier's rules. (15 marks)

Turn over

5. (a) (i) Discuss the procedure of indirect levelling on a rough terrain. (7 marks)
(ii) What are the advantages of reciprocal observations over the single observation? (8 marks)

Or

(b) Discuss briefly the following :

- (i) Mirror stereoscope.
- (ii) Lens stereoscope.

(15 marks)

[4 × 15 = 60 marks]