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B.Tech. Degree III Semester Examination November 2014

CE 1302 (A/B) SURVEYING I (2012 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART A (Answer *ALL* questions)

(8 × 5 = 40)

- I. (a) Explain the basic principle of surveying.
 (b) What is local attraction? How can it be eliminated?
 (c) What are the uses of contour maps?
 (d) How do curvature and refraction affect levelling operations?
 (e) Differentiate between Simpson's rule and trapezoidal rule.
 (f) Explain mass haul curve..
 (g) What is an anallatic lens?
 (h) What is a tacheometer? Explain the tacheometric constants.

PART B

(4 × 15 = 60)

- II. (a) Define three point problem and explain how it can be solved by tracing paper method. (8)
 (b) Compare the advantages and disadvantages of plane table surveying with those of chain surveying. (7)

OR

- III. (a) The following bearings were observed while traversing with a compass (12)
- | Line | F.B. | B.B |
|------|---------|---------|
| AB | 45°45' | 226°10' |
| BC | 96°55' | 277°5' |
| CD | 29°45' | 209°10' |
| DE | 324°48' | 144°48' |

Mention which stations were affected by local attraction and determine the corrected bearings.

- (b) What are the errors in compass survey? (3)
- IV. (a) Explain the temporary adjustments of a level. (10)
 (b) Explain the theory of direct levelling. (5)

OR

- V. The following consecutive readings were taken with a level and 5m levelling staff on continuously sloping ground at a common interval of 20m. (15)
 0.385; 1.030; 1.925; 2.825; 3.730; 4.685; 0.625; 2.005; 3-110; 4.485. The reduced level of the first point was 208.125m. Rule out a page of level field book and enter the above readings. Calculate the reduced levels of points by rise and fall method and also the gradient of the line joining the first and the last point.

(P.T.O.)

- VI. The following perpendicular offsets were taken from a chain line to a hedge: (15)

Chainage (m):	0	15	30	45	60	70	80	100	120	140
Offsets (m) :	7.6	8.5	10.7	12.8	10.6	9.5	8.3	7.9	6.4	4.4.

Calculate the area between the survey lines, the hedge and the end offsets by

(i) Trapezoidal rule (ii) Simpson's rule.

OR

- VII. Write short notes on (i) Planimeter (ii) Ceylon ghat tracer (iii) Box sextant (15)

- VIII. (a) Explain the various sources of error in theodolite work. (8)
 (b) What is a direct reading tachometer? Explain briefly. (7)

OR

- IX. (a) Explain any two methods of adjusting a traverse. (10)
 (b) Differentiate between repetition method and reiteration method for measuring a horizontal angle. (5)
