Code: 13A01302 **R13**

B.Tech II Year I Semester (R13) Supplementary Examinations June 2016

SURVEYING - I

(Civil Engineering)

Time: 3 hours Max. Marks: 70

PART - A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Distinguish between plane and geodetic surveying.

(b) Define well condition triangle and offset in chain surveying.

(c) Find the magnetic declination at a place, if the magnetic bearing of the sun at noon is 184°.

(d) List out the accessories of a plane table surveying.

(e) Define curvature and refraction in leveling.

(f) List out the various uses of contours.

(g) What is meant by transiting and face left observation in theodolite surveying?

(h) List out the methods of balancing the traverse.

(i) Define the terms two level section and three level sections.

(j) List out the uses of Abney level.

PART - B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

2 Discuss about the classification of surveying:

(a) Based on object of survey.

(b) Based on instruments employed.

OR

3 A tape was exactly 30 m long at 20℃ when palced on the flat under a pull of 75 N. A survey line was measured with this tape under a pull of 120 N and found to be 810 m. The average temperature during the measurement was 30℃. If the tape was supported in spans of one tape length each time, determine the corrected length of the tape. The cross-sectional area of the tape is 4 mm^2. The unit weight of the material of the tape is 7.8 x 10^{-5} N/mm^2. The modulus of elasticity of the material of the tape is 2.1 x 10^5 N/mm^2. The coefficient of linear expansion of the material of the tape is 11.7 x 10^{-6}/℃.

UNIT - II

4 The following were observed in a compass traverse. Correct for local attraction.

Line	Fore bearing	Back bearing
AB	44° 30′	226° 45′
BC	124° 30′	303° 15′
CD	181° 00′	1° 00′
DA	289° 30′	108° 30′

OR

5 List out methods of plane tabling and explain any one method with a neat sketch.

UNIT - III

6 The following staff readings were observed with a level and a 4 m staff on a continuously sloping ground at a common interval of 15 m: 0.880, 1.635, 2.055, 2.530, 3.085, 3.580, 1.255, 2.060, 2.465, 3.740, 1.035, 1.145, 1.730 and 2.645. The reduced level of the first point was 780.150. Rule out a page of a level-book and enter the above readings. Calculate the reduced levels and the gradient of the line joining the first and last points.

OR

7 Explain about the characteristics of contours with neat sketches.

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UNIT - IV

8 Define horizontal angle. List out the methods of measuring horizontal angle and explain any one method in detail.

OR

9 For the following traverse, compute the length CD, so that A, D and E may be in one straight line.

Line	Length in metres	Bearing
AB	110	$83° 12'$
BC	165	$30° 42'$
CD	-------	$346° 06'$
DE	212	$16° 18'$

UNIT - V

10 The following offsets were taken from a chain line to a hedge.

Distance (m)	0	6	12	18	24	36	48	60	72	81	90
Offset (m)	3.8	3.3	2.4	1.8	0.9	1.5	1.8	2.2	3.0	3.3	3.6

Calculate the area enclosed between the chain line, the hedge and the end offsets by:

(a) Simpson's rule.

(b) Trapezoidal rule.

OR

11 Briefly explain about the used and working principle of following instruments:

(a) Optical square.

(b) Pantagraph.

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