Code: 13A01302 R13

B.Tech II Year I Semester (R13) Supplementary Examinations June 2015

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) What is the object or purpose of surveying?

(b) Define chain surveying. What is the fundamental principle of chain surveying?

(c) What do you understand by whole circle bearing and quardantal bearing of a line?

(d) Name the errors in plane tabling.

(e) What are the different kinds of bench marks?

(f) What are the different characteristics of contour?

(g) List the essential parts of a theodolite.

(h) Name the two methods of measuring horizontal angles using a theodolite. When each method is advantageously used?

(i) What is Simpson's rule? What are the limitations of this method?

(j) What is Prismoidal rule?

PART - B

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

UNIT - I

2 Explain how will you continue chain in passing the following obstacles:

(a) A River

(b) A Pond

(c) A Building.

OR

3 (a) What factors should be considered in deciding the stations of a chain survey?

(b) What is local attraction? How is it detected and eliminated?

UNIT - II

4 A closed traverse was conducted round an obstacle and the following observations were made. Work out the missing quantities:

Side	Length in m	Azimuth
AB	–	$33^0\,45'$
BC	300	$86^0 23'$
CD	–	$169^0 23'$
DE	450	$243^0 54'$
EA	268	$317^0 30'$

OR

5 (a) What are the different types of errors in plane tabling?

(b) What are the sources of error in compass survey?

Contd. in page 2

UNIT - III

6 Describe various methods of contouring. Discuss the merits and demerits of each?

OR

7 The following consecutive readings were taken with a dumpty level, the instrument having been moved after fourth and seventh readings:
0.355,0.485,0.625,1.755,1.895,2.350,1.780,0.345,0.685,1.230,2150
The first reading was taken with the staff held upon a bench mark of elevation 255.500 m. Tabulate the page of field book and calculate the levels of the points.

UNIT - IV

8 What are the different errors in theodolite work? How are they eliminated?

OR

9 Define the following terms in Theodolite:
(a) Vertical axis (b) Horizontal axis (c) Centering (d) Transiting (e) Changing face.

UNIT - V

10 (a) The perpendicular offsets taken at 10 m intervals from a survey line to an irregular boundary are 2.18 m, 3.2 m, 4.26 m, 6.2 m, 4.8 m, 7.20 m, 8.8 m, 8.2 m and 5.2 m. Determine the area enclosed between the boundary, survey line, the first and the last offsets by (i) Trapezoidal rule (ii) Simpson's rule.

(b) Find out the volume of earth work in a road cutting 120 m long from the following data. The formation width 10 meters, side slopes 1 to 1; average depth of cutting along the centre of line 5 m, slopes of ground in cross – section 10 to 1

OR

11 The following offsets were taken from a chain line to a hedge

Chain (m):	0	15	30	45	60	70	80	100	120	140
Offset (m):	7.60	8.5	10.7	12.8	10.6	9.5	8.3	7.9	6.4	4.4

Compute the area by
(a) Trapezoidal rule (b) Simpson's rule (c) Average ordinate rule.

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