

SR - Sem III - Old - Civil

Surveying - I

16.12.2015

Q.P. Code : 1213

(3 hrs)

Total Marks: 100

- Note:** 1. Question number 1 is compulsory
2. Attempt any **FOUR** out of the remaining **SIX** questions
3. Figure to right indicates full marks

1. Write a short notes on the following (ANY FOUR)

4 x 5 = 20 M

- Geodetic surveying
- Explain cumulative and compensating error
- Balancing foresight and back sight.
- Sensitiveness of bubble tube
- Differentiate between consecutive and independent coordinates.

2. (a) The following offsets were taken from a chain line to a hedge.

10 M

Distance (m)	0	5	10	15	20	25	30	35	40
Offset (m)	0	2.5	50	7.5	8.8	7.5	6.5	3.5	0

Calculate the area in enclosed between the chain line and hedge by (i) Simpson's rule, and (ii) Trapezoidal rule

(b) Following are the bearings taken in a closed compass traverse.

10 M

Line	AB	BC	CD	DE	EA
FB	S37°30'E	S43°15'W	N73°0'W	N12°45'E	N60°0'E
BB	N37°30'W	N44°15'E	S72°15'E	S13°15'W	S59°0'W

Compute the interior angles and correct them for observational errors.

3. (a) Explain different methods of plane table surveying

10 M

(b) The lengths and bearings of a traverse ABCD are as follows:

Line	AB	BC	CD
Length (m)	250.5	310.4	190.2
Bearings	30°15'	145°30'	222°15'

Calculate the length and bearing of the line DA.

10 M

4. (a) The following consecutive readings were taken with a level and a 3m levelling staff on a continuously sloping ground at a common interval of 20m : 0.602, 1.234, 1.860, 2.574, 0.238, 0.914, 1.936, 2.872, 0.568, 1.0824, 2.722. The reduced level of first point was 192.122m. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points and also the gradient of the line joining first and last points.

10 M

(b) Explain temporary adjustments of dumpy level.

10 M

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5. (a) What is grade contour? How will you locate it: (i) on the ground, and (ii) on the map. 10 M

(b) Discuss the advantages and disadvantages of plane table surveying over other methods. 10 M

6. (a) Direct ranging and Indirect ranging 7 M

(b) Stepping method 5 M

(c) A river is flowing from east to west. For determining the width of river two points A and B are selected on the southern bank such that distance $AB = 100\text{m}$. Point A is westwards. The bearing of a tree C on the southern bank are observed to be 40° and 340° , respectively from A and B. Calculate the width of the river. 8 M

7. Write a short notes on the following (ANY FOUR) 4 x 5 = 20 M

- (i) Reciprocal levelling
- (ii) Types of benchmark
- (iii) Methods of interpolation
- (iv) Volume by Spot level
- (v) Area of zero circle