

B.E. IV Semester (CGPA)
Civil Engineering Exam. 2012

SURVEYING - I

Paper : CE-402

Time Allowed : Three Hours

Maximum Marks : 60

Note : All questions are compulsory.

All questions carry equal marks.

Q.1. a) Explain, with neat diagram the construction and working of the following:

i) Optical square

ii) Cross staff

The length of a survey line was measured with a 20m chain and was found to be equal to 1200 metres. As a check, the length was again measured with a 25m chain and was found to be 1212m. On comparing the 20m chain with the test gauge, it was found to be 1 decimeter too long. Find the actual length of the 25m chain used

OR

24.876

a) What are various obstacles in chain survey. Explain any one in detail.

 In passing an obstacle in the form of a pond, station A and D, in the main line, were taken on the opposite site of the pond. On the left AD a line AB 200m long was laid down a second line AC 250m long on the right of AD. The point B, D and C being in the same straight line. BD and DC were found 125m and 150m respectively. Find length of AD.

- Q.2.  a) Compare the advantages and disadvantages of plane table surveying over chain surveying.
 b) Write difference between prismatic compass and surveyor compass.

OR

- a) Describe briefly the use of various accessories of plane table survey.
 b) What is local attraction? How is it detected and eliminated?

- Q.3. a) Explain the temporary adjustments of a transit.
 b) What are the various method of theodolite traversing.

OR

- a) Distinguish between following:
 i) Closed traverse and open traverse.
 ii) Loose needle method and fast needle method.
 b) What are the different errors in theodolite work.

Q.4.

- a) The following staff reading were observed successively with level, the instrument having been moved forward after the second, fourth and eighth reading.

0.875, 1.235, 2.310, 1.385, 2.930, 3.125, 4.125
0.120, 1.875, 2.030, 3.765.

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The RL of first point is taken at a bench mark of 132.135m.
 Find RL of all points and apply usual check.

- b) Differentiate between permanent and temporary adjustment of level.

OR

- a) Write the difference between Dumpy level, Y level and Tilting level
- b) Define : Bench mark, line of collimation, level surface, Bubble line, Backsight, Dip of the horizant.

Q.5.

- a) Describe the various method of contouring. Discuss their merits and demerits.
- b) The following perpendicular offsets were taken at 10 metre internal from a survey line to an irregular Boundary line.

3.25, 5.60, 4.20, 6.65, 8.75, 6.20, 3.25, 4.20, 5.65

Calculate the area enclosed between the survey line and irregular boundary line and the first and last offset by

- average ordinate rule and
- Trapezoidal rule.

OR

- a) What are the different methods of determining area.
Explain one in detail.
- b) Draw the following's counties.
- i) Hill
 - ii) Pond
 - iii) Over hanging
 - iv) Cliff.



$1 \text{ m}^2 = 10 \text{ feet}^2$