**Code: 15A01304**

**R15**

B.Tech II Year I Semester (R15) Supplementary Examinations June 2018
**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 are the uses of cross-staff?
   (b)   List out the merits of compass surveying.
   (c)   How to adjust three screw head in dumpy level.
   (d)   Define offset and mention its types.
   (e)   What do you mean by base line and check line in chain surveying?
   (f)    State the temporary adjustments of compass survey.
   (g)   State briefly the principles of surveying.
   (h)   What is meant by traversing?
   (i)    List out the advantages of compass surveying.
   (j)    Explain briefly the uses of contours.

**PART – B**
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2    (a)   What is a well-conditioned triangle? Why is it necessary to use well-conditioned triangle?
     (b)   Write a note on scales used for maps and its choice.
**OR**
3    (a)   Differentiate between Gunter's chain and engineer's chain and state relative advantages of each.
     (b)   Explain in detail about classification of errors depending on its source.

UNIT – II

4    (a)   What is local attraction? How is it detected and eliminated?
     (b)   What is three-point problem? How is it solved by triangle of error method?
**OR**
5    (a)   Determine the values of the included angles in closed compass traverse ABCD conducted in clockwise
           direction, given the following fore bearings of their respective lines. Also apply the check.

| Line | Fore bearing(in degrees) |
|------|--------------------------|
| AB   | 40                       |
| BC   | 70                       |
| CD   | 210                      |
| DA   | 280                      |

     (b)   Discuss briefly the use of various accessories of a plane table.

**UNIT – III**

6  (a)  The following staff readings were observed successively with level, the instrument having been moved forwards after second, fourth and eighth readings:

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

The first reading was taken with staff held upon a bench mark of elevation 132.135. Enter the readings in level book form and reduce the levels. Apply the usual checks and find the difference between the first and last points.

(b)  Explain the characteristics of contours.

**OR**

7  (a)  Describe the essential difference between the following levels:
(i) Dumpy level. (ii) Y level. (iii) Tilting level.

(b)  Define contouring. Describe various methods of contouring along with merits and demerits of each.

**UNIT – IV**

8  (a)  Describe fast needle method of theodolite traversing.

(b)  What are face left and face right observations? Why is it necessary to take both the observations?

**OR**

9  (a)  Distinguish between: (i) Loose needle method and fast needle method. (ii) Closed traverse and open traverse.

(b)  Explain the temporary adjustments of a theodolite.

**UNIT – V**

10  (a)  The following perpendicular offsets were taken from a chain line to an irregular boundary:

| Chainage (m) | 0 | 10 | 25 | 42 | 60 | 75 |
|---|---|---|---|---|---|---|
| Offset | 15.5 | 26.2 | 31.8 | 25.6 | 29.0 | 31.5 |

Calculate the area between the chain line, the boundary line and end offsets.

(b)  Write a note on the working of clinometer and pantagraph.

**OR**

11  (a)  How do you determine: (i) Capacity of reservoir? (ii) Earth work for a borrow pit?

(b)  Write in detail about the uses and working of: (i) Abney level. (ii) Sextant.

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