

**Total No. of Pages : 02**

**Total No. of Questions : 09**

**B.Arch. (Sem.-3)**

# SURVEYING AND LEVELLING-I

**Subject Code : AR-233**

**Paper ID : [A0920]**

**Time : 3 Hrs.**

**Max. Marks : 50**

**INSTRUCTION TO CANDIDATES :**

1. Question no. 1 is compulsory.
2. Attempt FIVE out of EIGHT questions (Q.2 to Q.9) along with Question no.1.

1. (a) Forward bearing of line AB and BC is  $75^\circ$  and  $120^\circ$ . What is internal angle B of two lines? (2)  
(b) Which is the equipment used to range a line on the field? (2)  
(c) What is coordinate system of surveying? Explain with sketches. (2)  
(d) What is standard length of chain and chain link? (2)  
(e) What is reduced level? (2)
2. Describe various type of survey used in land survey. Which type will you suggest to plan roads in approximately 50 acres in hill area? (8)
3. Explain the Auto level and staff with neat sketches. (8)
4. The following consecutive readings were taken with a level and 4.0m Staff on a continuously sloping ground at a common interval of 30 m - 0.780, 1.535, 1.955, 2.430, 2.985, 3.380, 1.250, 1.860, 2.365, 3.540, 0.935, 1.145, 1.630 and 2.645.  
The RL of first point A was 100.80- m. Rule out a page of level book & enter above readings. Calculate the RL of all the points by Rise & Fall Method. Also calculate the gradient of the line joining the first & last point. (8)
5. What is contour? Following reduce level of an area with respect to local coordinates are given by surveyor, Draw contour line of 98.5m.  
X(horizontal distance from 0), Y(vertical distance from 0), Z(reduced level).  
Arc 0, 0, 95.2 - 10, 10, 99.2 - 20, 20, 98.0 - 0, 10, 100.0 - 0, 20, 100.0 - 10, 0, 100 - 20, 0, 100.5 - 10, 20, 99.5 - 20, 10, 99.0 (8)

6. (a) Explain the plane table survey. (4)  
(b) Differentiate between compass survey and plane table survey. (4)
7. Describe functions of various instruments used in compass survey draw neat sketches. (8)
8. What is chain surveying? How it is performed? Explain with sketches. How will you find object offset to a base line by chain surveying? (8)
9. Explain following survey instruments with methodology. (Draw neat sketches)
  - (a) Box sextant
  - (b) Plan meter
  - (c) G.P.S (8)

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