

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

June, 2015

00136

BAR-056 : TOPOGRAPHIC SYSTEMS

Time : 3 hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. (a) What is the difference between plan and map ? Explain representative fraction. 7
- (b) Explain the likely errors in chain surveying and precautions that should be taken to eliminate them. 7
2. (a) Discuss the different obstacles encountered in chain surveying. 7
- (b) A 50 m long steel tape is standardized at a pull of 150 N. The tape is held such that it is supported at the ends and at its mid-point. The cross-section of the tape is 5 mm^2 and unit weight is 76.6 kN/m^3 . Find the normal tension of the tape, if $E = 200 \text{ GN/m}^2$. 7

3. (a) Explain the difference between a prismatic compass and a surveyor's compass. 7
- (b) The whole circle bearings of a traverse are recorded as below. Convert these to reduced bearing. 7

Line	Bearing
AB	70° 30'
BC	120° 45'
CD	223° 30'
DA	320° 47'

4. (a) Enlist and explain the function of each of the instruments required for plane table surveying. 7
- (b) Explain the two point problem and the method of its solution. 7
5. (a) Explain the repetition method to measure the horizontal angles. How are readings recorded? 7
- (b) Explain the permanent adjustment of theodolite. 7

6. (a) Explain with neat sketches any two methods of balancing of traverse. 7
- (b) A traverse survey was conducted and the data obtained is given below. Find the magnitude and direction of the closing error. 7

Line	AB	BC	CD	DA
Length	156.5	178.2	234.8	202.4
Bearing	78° 40'	152° 32'	251° 18'	356° 15'

7. (a) Explain the difference between Rise and Fall method and Height of Collimation method. 7
- (b) The staff readings were observed as — 1.324, 2.605, 1.385, 0.638, 1.085, 2.125 and 1.555. The instrument was shifted after the third and the sixth readings. The first reading was taken as Bench mark of elevation 0.000. Find the RL of all points. 7

8. Write short notes on any *four* of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) Reciprocal Levelling
- (b) Principles of GIS
- (c) Principles of Compass Survey
- (d) Qualities of Good Surveyor
- (e) Total Station
- (f) Types of Offset
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