

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

December, 2014

00326

BAR-056 : TOPOGRAPHIC SYSTEMS

Time : 3 hours

Maximum Marks : 70

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

1. (a) Classify the survey on the basis of equipment used. Define the terms used. 7
- (b) Calculate the sag correction for a 30 m steel tape under a pull of 100 N in three equal spans of 10 m each. Weight of steel is 0.078 N/cm^3 . Area of cross-section of the tape is 0.08 cm^2 . 7
2. (a) Explain the functions of cross staff and optical square. 7
- (b) In passing an obstacle in the form of a pond, stations A and D, on the main line were taken on the opposite side of the pond. On the left of AD, a line AB, 200 m long was laid down and a second line AC, 250 m long was ranged on the right of AD, the points B, D and C being in the same straight line. BD and DC were then chained and found to be 125 and 150 m, respectively. Find the length of AD. 7

3. (a) Explain the permanent adjustment of surveyor's compass. 7
- (b) What is magnetic declination ? Discuss the factors affecting it. 7

4. The following bearings were observed in running a closed traverse :

Line	FB	BB
AB	75° 5'	254° 20'
BC	115° 20'	296° 35'
CD	165° 35'	345° 35'
DE	224° 50'	44° 5'
EA	304° 50'	125° 5'

Which station is affected by local attraction ? Determine the correct magnetic bearings. If the declination was 5° 10' E, what are the true bearings ? 14

5. (a) Describe in brief the essential difference between a Dumpy level and a Tilting level. 7
- (b) If the bubble tube of a level has a sensitiveness of 35'' per 2 mm division, find the error in the staff reading on a vertical staff at a distance of 100 m. 7
6. (a) Describe with neat sketches, the characteristics of contours. 7
- (b) Explain any two uses of contour maps. 7

7. (a) What are the factors affecting degree of precision of levelling? Explain in detail. 7
- (b) Discuss the difficulties faced during levelling in the following cases : 7
- (i) Steep slope
- (ii) Summits and hollows

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

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

- (a) Merits and demerits of rise and fall method
- (b) Reciprocal levelling
- (c) Instruments used for plane table surveying
- (d) Swing offset and oblique offset
- (e) Errors in compass survey
- (f) Temperature correction for tape
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