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BAR-056

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

00402

December, 2016

BAR-056 : TOPOGRAPHIC SYSTEMS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Use of calculator is permitted.*

1. (a) Classify surveying on the basis of object of survey. 7

(b) What are the uses of contour maps ? Discuss how the capacity of a reservoir is determined by a contour map. 7

2. (a) What is theodolite survey ? Explain the various parts of a theodolite. 7

(b) A and B are two points on the opposite sides of a pond. The Surveyor establishes a line AC clear of the pond such that B is visible from C. He establishes another point D on the line CB produced so that the line AD is also clear of the pond. If distances AC, CB, BD and DA are 300 m, 150 m, 175 m and 250 m respectively, find the distance AB. 7

3. (a) Explain true bearing, magnetic bearing, whole circle bearing and arbitrary bearing. 7

(b) In a closed traverse ABCDE the bearing of a line AB was 150°30′. The included angles were : — $\angle A = 130°10'$, $\angle B = 89°45'$, $\angle C = 125°22'$, $\angle D = 135°34'$ and $\angle E = 59°9'$. Determine the bearings of all the lines. 7

4. (a) Define the terms — Height of Instrument, Backsight, Foresight, Turning point, Intermediate sight. 7

(b) Discuss the effect of curvature of earth and refraction in levelling. 7

5. (a) Explain how the vertical angles between two points are determined with the help of theodolite. 7

(b) What is sensitivity of bubble ? What are the factors affecting it ? 7

6. (a) What is reciprocal levelling ? Explain with a suitable example. 7

(b) Discuss the three-point problem. 7

7. (a) Explain cross-sectioning and profile levelling. 7

(b) A river is flowing from west to east. For determining its width two points A and B are selected on the southern bank such that the distance AB = 80 m. Point A is westward. The bearings of a tree C on the northern bank are observed to be 38° and 338° from A and B respectively. Find the width of the river. 7

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Fundamentals of GIS

(b) Site Survey Technique

(c) Aspects of Surveying for the Architect

(d) Degree of Accuracy

(e) Height of Instrument Method

(f) Radiation Method