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09ENG2.6

Second Semester B.Arch. Degree Examination, Dec.2016/Jan.2017
Surveying and Levelling

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. Define Surveying and briefly explain the classification of surveying based on
i) Purpose ii) Instruments used. (12 Marks)
b. Explain the principles of surveying. (08 Marks)

- 2 a. Explain ranging and different types of ranging. (10 Marks)
b. A steel tape 20m long standardized at 55° F with a pull of 10kg was used for measuring a base line. Find the correction per tape length, if the temperature at the time of measurement was 80° F and the pull exerted was 16kg. Weight of 1 cubic cm of steel is 7.86g , wt of tape = 0.8kg and $E = 2.109 \times 10^6 \text{ kg/cm}^2$. Coefficient of expansion of tape per 1° F = 6.2×10^{-6} . (10 Marks)

- 3 a. Explain different methods to erect a perpendicular to a chain line, from a point on it and from a point outside the chain line. (12 Marks)
b. A survey line BAC crosses a river A and C being on the neat and distant banks respectively. Standing at D, a point 50 meters measured perpendicularly to AB from A, the bearings of C and B are 320° and 230° respectively, AB being 25 meters. Find the width of the river. (08 Marks)

- 4 a. List out the advantages and disadvantages of plane table survey over the other methods of survey. (10 Marks)
b. List the method of plane table surveys and explain any one with neat sketch. (10 Marks)

- 5 a. Define the terms : (10 Marks)
i) Face left observation ii) Face right observation iii) Swinging the telescope
iv) Transiting the telescope v) Telescope normal in theodolite survey.
b. Explain the measurement of horizontal angle by repetition method, using theodolite. (10 Marks)

- 6 a. Define i) Line of collimation ii) Bench mark iii) Foresight iv) Mean sea level. (08 Marks)
b. The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth readings : 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684m. Enter the above readings in a level book and calculate the RL of points if the first readings was taken on a bench mark of 432.384m. (12 Marks)

- 7 a. Discuss the characteristics of contours, with suitable sketches. (10 Marks)
b. Explain with sketches the uses of contour maps. (10 Marks)

- 8 Write short notes on the following :
a. Errors in chaining.
b. Temporary adjustments of a theodolite.
c. Profile levelling.
d. Cross staff. (20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.