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09ENG2.6

Second Semester B.Arch. Degree Examination, June/July 2011

Surveying and Levelling

Time: 3 hrs. 100 Max. Marks:100

Note: 1. ***Answer any FIVE full questions.***
2. ***Missing data, if any, may be assumed suitably.***

1 a. Discuss briefly the classification of surveying based on :
i) Purpose and ii) Instruments. **(10 Marks)**

b. Differentiate between Map and Plan. **(04 Marks)**

c. A rectangular plot in plan is 10cm × 30cm drawn to a scale of 1cm = 10m. If the same plot is redrawn on a toposheet to a scale of 1cm = 1km. what would be its area on the toposheet? Determine also R.F. in each case. **(06 Marks)**

2 a. Explain the different methods of chaining along the sloping ground. **(08 Marks)**

b. Explain any two methods of erecting perpendicular at a point on the chain. **(06 Marks)**

c. The length of a survey line was measured with a 30m chain and was found to be 315.4m. When the chain was compared with a standard, it was found to be 0.2m too short. Find the correct length of the line. **(06 Marks)**

3 a. Explain the principles of chain surveying. In what conditions the chain surveying is more suitable? **(06 Marks)**

b. What are accessories required for chain surveying? **(04 Marks)**

c. A line was measured with a steel tape which was exactly 30m at 20°C and at a pull of 98.1N, the measured length being 1650.0m. the temperature during measurement was 30°C and the pull was 147.15N. Find the true length of the line, if the cross sectional area of the tape was $0.025cm^2$. The coefficient of expansion of the material of the tape per °C = 3.5×10^{-6} and modulus of elasticity of the material of the tape = 2.06×10^5 N/mm^2. **(10 Marks)**

4 a. Write a note on the following :
i) Alidade ii) Plumbing fork iii) Trough compass **(06 Marks)**

b. Describe the procedure for setting up a plane table over a station. **(06 Marks)**

c. What is orientation? What are different methods of orientation of a plane table? **(08 Marks)**

5 a. Define the following terms :
i) Fore sight ii) Back sight iii) Intermediate sight **(06 Marks)**

b. What is Bench Mark? Describe the different types of Bench Mark. **(08 Marks)**

c. Two points A and B are on the opposite banks of a wide river. The following observations were taken in a reciprocal leveling.

Instrument at	Staff reading at	
	A	B
A	2.100	3.620
B	0.900	2.520

If the R.L. of A is 150.0m, determine the R.L. of B. **(06 Marks)**

6 a. List out the temporary adjustments of a dumpy level. Explain briefly the temporary adjustments of a dumpy level. (06 Marks)

b. The following readings were observed successively with a leveling instrument. The instrument was shifted after fifth and eleventh readings 0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575, 3.375, 3.895, 1.735, 0.635 and 1.605m. Draw up a page of level book and determine the R.L. of various points if the R.L. of the point on which the first reading was taken is 136.440m. Use the rise and fall method. (14 Marks)

7 a. Distinguish between the following :
   i) Plunging and swinging the telescope
   ii) Clamp screw and tangent screw

b. How would you measure a horizontal angle by repetition method? What are its advantages? (08 Marks)

(12 Marks)

8 a. Describe different methods of contouring. Discuss the merits of each. (10 Marks)

b. Explain the uses of contours. (10 Marks)