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15ENG2.7

Second Semester B.Arch. Degree Examination, June/July 2016

Site Surveying and Analysis

Time: 3 hrs. Max. Marks:100

Note: 1. ***Answer FIVE full questions, selecting ONE full question from each module..***

2. ***Draw relevant sketches.***

Module – 1

1 a. Distinguish between plane surveying and Geodetic surveying. (Any three). **(06 Marks)**

b. Discuss briefly the classification of surveying based on i) Purpose ii) Instruments. **(08 Marks)**

c. The area of the plan of an old survey plotted to a scale of 15m to 1cm now measures as 80.2 cm^2 as found by a planimeter. The plan is found to have shrunk, so that a line originally 10cm long now measures 9.8 cm only. Find the shrunk scale and the true area of the survey. **(06 Marks)**

2 a. Enumerate the principles of surveying. Explain with neat sketches. **(08 Marks)**

b. What is ranging? Explain with a neat sketch indirect ranging. **(06 Marks)**

c. Explain the use of line ranger with a neat sketch. **(06 Marks)**

Module – 2

3 a. Define the following terms used in chain survey :

i) Base line
ii) Offset
iii) Chainage. **(03 Marks)**

b. Explain with neat sketches, how to erect a perpendicular to a chain line from a point on it. (any three methods) **(09 Marks)**

c. What are the advantages and disadvantages of plane table surveying? **(08 Marks)**

4 a. Define the following terms :

i) Level line
ii) Plane of collimation
iii) Bench mark
iv) Change point
v) Back sight
vi) Fore sight **(06 Marks)**

b. Briefly explain the temporary adjustments of a dumpty level. **(06 Marks)**

c. 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 RL of various points if the RL of the point on which the first reading was taken is 136.440m . **(08 Marks)**

Module – 3

5 a. What is a contour line? List the various characteristics of contours (any six). **(08 Marks)**

b. Write short notes on :
   i) Interpolation of contour
   ii) Contour gradient
   iii) Horizontal equivalent. **(06 Marks)**

c. Discuss the various uses of contour maps. **(06 Marks)**

6 a. Define the terms :
   i) Transiting
   ii) Telescope inverted
   iii) Lining in. **(06 Marks)**

b. How would you measure a horizontal angle by repetition method using a theodolite? Explain. **(08 Marks)**

c. What are the components of a total station? List the uses of a total station. **(06 Marks)**

Module – 4

7 a. Explain the method of pacing of measurement of horizontal distances using ones own body. **(06 Marks)**

b. Briefly explain the reconnaissance survey to read the terrain. **(06 Marks)**

c. Using photography as a surveying method to survey 1 acre of land which is heavily contoured, explain your approach to figure out the terrain. **(08 Marks)**

8 Explain how the analysis of a site (upto 1 acre) is done with respect to the following factors:
   i) Microclimate **(07 Marks)**
   ii) Vegetation **(06 Marks)**
   iii) Topography. **(07 Marks)**

Module – 5

9 a. Explain different types of land survey drawings. **(08 Marks)**

b. Draw symbols used on drawings :
   i) Smooth Wire Fence
   ii) Wall and Gate
   iii) Bench mark
   iv) Rail fence **(06 Marks)**

c. Write a note on grid references for measurements. **(06 Marks)**

10 a. Sketch to a scale the plan of a 2 – BR residence. Indicate all the dimensions including centre line. **(10 Marks)**

b. Explain the various process involved in setting out of centre lines of a building. **(10 Marks)**

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