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15CV46

Fourth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Advanced Surveying

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions, choosing one full question from each module.***

Module-1

1 a. List the different methods of setting out simple circular curves. Explain the Linear method of setting out simple curve by the method of offset from long chord. **(06 Marks)**

b. Two tangents intersect at chainage 1000mt. The deflection angle being 28 degree, calculate the necessary data to set out a simple circular curve of 200mt radius by Rankines method of deflection angles. Take per interval as 10mt. **(10 Marks)**

OR

2 a. What is a Transition curve? List the functions and essential requirements of an ideal Transition curve. **(04 Marks)**

b. Two straights with a total deflection angle of 72^0 are to be connected by a compound curve of two branches of equal length. The Radius of the first branch is 300mt and that of the second branch is 400mt, chainage of intersection point is 1500 mt. Calculate the chainage of tangent points and that of Point of Compound Curvature (PIC). **(06 Marks)**

c. Two parallel straight gant apart are to be connected by a Reverse curve. If the distance between the two tangent points is 72mt, find the common radius of the two branches. If however, radius of the first branch is 100mt, find the radius of the second branch. **(06 Marks)**

Module-2

3 a. List the various factors that are to be considered in the selection of site for Base line and stations in Triangulations survey. **(08 Marks)**

b. Write a note on Classifications of Triangulations system. **(08 Marks)**

OR

4 a. State and explain Law of Weights. **(08 Marks)**

b. Find the most probable value of the angles A and B from the following equations :
$A = 40^0\ 15'\ 21.4"$; $B = 45^0\ 12'\ 18.4"$; $A + B = 85^0\ 27'\ 45.2"$. **(08 Marks)**

Module-3

5 a. Define the following terms : i) The a celestrial sphere ii) The azimuth iii) The sensible Horizon iv) The hour angle. **(08 Marks)**

b. The standard time meridian in India is 82^0 30'E. If the standard time at any instant is 20 hours 24 min 6 seconds, find the local mean time for two places having longitudes i) 20^0 E ii) 20^0 W. **(08 Marks)**

OR

6 a. Define the following terms : **(08 Marks)**
i) The visible horizon ii) The Latitude (θ) iii) Hour circle iv) Zenith and Nadir.

b. Find the GMT corresponding to following LMT :
i) 9 hour 10 minutes 12 second AM at a place in longitude 42^0 36' W. **(08 Marks)**
ii) 4 hour 32 minutes 10 second AM at a place in longitude 56^0 32' E.

Module-4

7 a. Define the following terms : i) Vertical photograph ii) Flying height iii) Perspective projection iv) Exposure station. **(08 Marks)**

b. A vertical photograph was taken at an altitude of 1200mt above MSL. Determine the scale of the photograph for the terrain lying at elevation of 80mt and 300mt, if the Focal length of the camera is 15cm. **(08 Marks)**

OR

8 a. List the reasons for keeping overlap in photographs. **(06 Marks)**

b. Describe how mosaic differs from a map. **(04 Marks)**

c. The distance from the principal point to an image on a photograph is 6.44cm and the elevation of the object above the datum (sea level) is 250mt. What is the relief displacement at the point if the datum scale is 1 in 10,000 and the focal length of the camera is 20cm? **(06 Marks)**

Module-5

9 a. Explain the working principle of Total station and list the salient features of Total station. **(08 Marks)**

b. Define Remote sensing. List the applications of Remote sensing. **(08 Marks)**

OR

10 a. What is GIS? With a neat sketch, explain the components of GIS. **(08 Marks)**

b. Explain the working principle of GPS and distinguish between hand held GPS and differential GPS. **(08 Marks)**

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