

B.E. / B.Tech. Civil Engineering (Model Curriculum) Semester-V
PCCCE505 / SURVEY1 - Surveying-II

P. Pages : 2



Time : Three Hours

GUG/S/25/13728

Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.

- 1.** a) Two straight AB and BC are intersected by a line D_1D_2 . The angles BD_1D_2 and BD_2D_1 are $40^\circ 30'$ and $36^\circ 24'$ respectively. The radius of the first arc is 600m and that of second arc is 800m. If the chainage of intersection point B is 8248. 1m find the chainages of tangent point & the point of compound curve. 10

b) Explain concept of Bernoulli's Lamniscate Curve. 6

OR

- 2.** a) Determine the offset to be set out at $\frac{1}{2}$ chain interval along the tangents to locate a 16-chain curve, the length of each chain is 20m. 8

b) Write down elements of transition curve. 8

3. a) Explain purposes of field astronomy and use of instruments in Astronomical surveying. 10

b) Convert the following difference in longitudes into interval of time. 6

a) $62^{\circ}17'42''$ b) $176^{\circ}24'57''$

OR

- 4.** a) The apparent altitude of Alpha cause at its upper transit was observed as $23^{\circ}22'20''S$. What is the observers latitude? If declination of Alpha crus was $52^{\circ},32',20''S$. 8

b) Calculate the latitude of the place where a given star at its lower culmination remains at the horizon and its upper culmination occurs in zenith. 8

5. a) Explain the term motion of sun and stars. 8

b) Write a note on different time systems. 8

OR

6. a) Explain in detail Celestial co-ordinate systems. 8

b) Determine the hour angle and declination of a star from the following data. 8

Altitude = $22^{\circ}36'$

Azimuth = 42°W

Latitude of the Place = 40°N .

7. a) Explain sounding methods of hydrographic surveying. 10
 b) Define tide and concept of Lunar tide. 6

OR

8. a) Explain in detail cadastral surveying. 6
 b) Write a note on : 10
 1) Spring tides
 2) Neap tides
 3) Applications of Hydrographic surveying.
9. a) The following are the observed values of an angle. 8

Angle	Weight
$40^\circ 20'20''$	2
$40^\circ 20'18''$	2
$40^\circ 20'19''$	2

 Find :
 1) P. e. of single observation of unit weight.
 2) P. e. of weighted arithmetic mean
 3) P. e. of single observation of weight
- b) Explain the general principles of least squares. 8

OR

10. Find the most probable value of the angle A from the following observation : 16
 $A = 30^\circ 28'40'' ; 3A = 91^\circ 25'55'' ; 4A = 121^\circ 54'30''$
