PCCCE505 - Survey II

P. Pages : 2

Time : Three Hours

Max. Marks : 80

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Notes : 1. All questions are compulsory.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Write down the elements of Transition curve. **6**

b) Determine the offsets to be set out at ½ chain interval along the tangents to locate a 16-chain curve, the length of each chain is 20m. **10**

OR

2. A road bend which deflects 80º is to be designed for a maximum speed of 100 km/hr a maximum centrifugal ratio of ¼ & a maximum rate of change of acceleration is $30 \, cm/sec^3$. The curve consisting of a circular are combined with two cubic spirals. **16**
Calculate:
i) The radius of circular curve.
ii) The requisite length of transition
iii) The total length of composite curve.
iv) The chainages of the beginning and end of the transition curve and of the junctions of the transition curves with the circular arc if the chainage of the P.I. is 42862m.

3. a) Define each and every Astronomical terms. **10**

b) Express the following intervals of time into difference in longitudes. **6**
i) 5h300m455
ii) 10h24m125

OR

4. a) Find the azimuth and the hour angle of the sun at sunset for a place of latitude 49º, its declination being given to be 19ºS. **10**

b) Define time and classification of time. **6**

5. a) Explain the term 'Motion of sun and stars'. **6**

b) Describe in detail celestial co-ordinate systems. **10**

OR

6. Determine the hour angle and declination of a star from the following data: **16**
Latitude of the place = 48º30′N
Azimuth of the star = 50º W
Altitude of the star = 28º24′

7. a) Explain the methods of locating soundings by observations with sextant method. **10**

b) Define tide and the concept of Lunar tide. **6**

OR

8. a) Write a note on: **6**
 i) Spring tides.
 ii) Neap tides.

b) Write down the methods that are used for sounding measurement. **10**

9. a) Write down the types of errors. **6**

b) An angle A was measured by different persons and the following are the values: **10**

Angle	No. of measurements
65° 30′ 10″	2
65° 29′ 50″	3
65° 30′ 00″	3
65° 30′ 20″	4
65° 30′ 10″	3

Find the most probable value of the angle.

OR

10. Adjust the following angles closing the horizon: **16**
 A = 110° 20′ 48″   wt. 4
 B = 92° 30′ 12″   wt. 1
 C = 56° 12′ 00″   wt. 2
 D = 100° 57′ 04″   wt. 3

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