Reg. No.															

Question Paper Code	12869

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Third Semester

Civil Engineering

20CEPC302 - PLANE AND GEODETIC SURVEYING

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Differentiate plane surveying and geodetic surveying.	2	K2	CO1
2.	Convert the following WCB into QB, i. 270° ii. 130°40'.	2	K2	CO1
3.	State the reason for taking face left & face right observations.	2	K1	CO3
4.	Define contour interval.	2	K1	CO3
5.	What do you mean by reduction to centre?	2	K1	CO4
6.	What is meant by traversing?	2	K1	CO4
7.	Define Total Station.	2	K1	CO5
8.	What do you understand from the term "Satellite configuration"?	2	K1	CO5
9.	Differentiate "Tropic of Cancer" from "Tropic of Capricorn".	2	K2	CO6
10.	List out the types of vertical curve.	2	K1	CO6

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain in detail about the instruments & accessories used for Chaining and Ranging.	13	K2	CO1
		OR			
	b)	The following bearings were observed with a compass.	13	K2	CO1

Line	F.B	B.B
AB	107º15'	287º 15'
BC	22º 00'	202º 00'
CD	281º 30'	101º 30'
DE	189º 15'	9º 15'
EA	124º 45'	304º 45'

Compute the interior angles of traverse.

12.	a)	Explain how you would measure horizontal angle by repetition and reiteration with a theodolite.	13	K2	CO2
		OR			

b) Illustrate the different methods of interpolating contours. *13 K2 CO2*

13. a) The following are mean values observed in the measurement of three angles α, β and γ at one station. *13 K2 CO3*

α	= 76º42'46.2"	weight 4
α + β	= 134º36'32.6"	weight 3
β + γ	= 185º35'24.8"	weight 2
α + β+ γ	= 262º18'10.4"	weight 1

Calculate the most probable value of each angle

OR

b) From a satellite station 'S' at a distance of 20m from main triangulation station D, the following direction were observed *13 K2 CO3*

D = 0°00'00"
A = 130°20'40"
B = 210°40'20"
C = 280°20'20"
Length DA = 2800 m
DB = 3800 m
DC = 2700 m
Find the directions of DA, DB and DC.

14. a) Draw a neat sketch and explain the working principle of Microwave total station equipment. *13 K3 CO4*

OR

b) Describe in detail about the different segments of GPS. *13 K3 CO4*

15. a) Explain the various sounding methods in detail. *13 K2 CO5*

OR

b) Illustrate the different coordinate systems by which the position of heavenly body can be specified. *13 K2 CO5*

PART - C (1 × 15 = 15 Marks)

16. a) The following staff readings were observed successively with level, the instrument having been moved forward after the second, fourth and eighth readings 0.875, 1.235, 2.310, 1.385, 2.930, 3.125, 4.125, 0.120, 1.875, 2.030, 3.765. The first reading was taken with the staff held upon a benchmark of elevation 132.135. Enter the readings in level book form and reduce the levels. Determine the difference in level between the first and last points. *15 K3 CO6*

OR

b) Explain any three methods of plane table surveying with neat sketch. *15 K2 CO6*