Reg. No.											

Question Paper Code	11690

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022
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. The area of a plot to be surveyed is about 1200 km² the most suitable method is _____   2,K2,CO1
   A) Compass   B) Tachometric
   C) Geodetic Surveying   D) Plane Surveying
   Justify your answer with a suitable explanation.

2. What is difference between plane surveying and geodetic surveying?   2,K2,CO1

3. A closed contour line with higher elevations inside represents a _____   2,K3,CO3
   A) Pond   B) Hill
   C) Valley   D) Cliff
   Justify your answer.

4. List out any four sources of errors in Theodolite's work.   2,K1,CO3

5. The following readings refer to an operation of reciprocal leveling: 2,K3,CO4

Stations	Staff Readings	
	A	B
A	1.575m	2.675m
B	1.285m	2.425m

   The difference in elevation between A and B is _____
   A) 1.100m   B) 1.140m   C)1.120m   D)0.020m

6. Differentiate between Triangulation and Trilateration.   2,K2,CO4

7. State the working principle of EDM and lists any two of its advantages.   2,K1,CO5

8. Summarize the three components of the GPS system along with its role.   2,K1,CO5

9. The long chord of a circular curve of radius R with deflection angle Δ is given by _____   2,K2,CO6
   A) 2R cos (Δ /2)   B) 2R sin (Δ /2)
   C) 2R tan (Δ /2)   D) 2R sec (Δ /2)
   Explain your choice of answer.

10. Rewrite any four various applications of Hydrographic surveying.   2,K2,CO6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **11690**

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11. a) Explain in detail about instrument & 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	$80^0 40'$	$260^0 40'$
BC	$121^0 55'$	$301^0 55'$
CD	$170^0 50'$	$350^0 50'$
DE	$230^0 5'$	$50^0 5'$
EA	$310^0 50'$	$130^0 50'$

Determine the interior angles & apply the arithmetic check.

12. a) Determine the distance and elevation formulae for Staff Normal condition for the following two cases with a neat sketch.
    (i) Line of sight at an angle of elevation 'θ' 7,K2,CO3
    (ii) Line of sight at an angle of depression 'θ' 6,K2,CO3

OR

b) Illustrate the various characteristics of contours in detail with the help of a neat sketch. 13,K2,CO3

13. a) Summarize the need and significance of Satellite Stations in Triangulation and explain in detail any two cases of reduction to center with the required figures. 13,K2,CO4

OR

b) Explain in detail the general principles of least squares and summarize the three kinds of errors in surveying. 13,K2,CO4

14. a) Explain in detail about Microwave, Visible and Infrared EDM Instruments along with their working principle and application. 13,K2,CO.

OR

b) Interprets the various advantages and applications of GPS. Rewrite in brief about the function of Anti spoofing in GPS. 13,K2,CO5

15. a) Derive all the five elements of the Simple Circular Curve with the help of a neat figure. 13,K3,CO6

OR

b) Illustrate any three methods of plotting the soundings in Hydrographic Surveying with the help of a neat diagram. 13,K3,CO6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 -- Create **11690**

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 0.675, 1.230, 0.750, 2.565, 2.225, 1.935, 1.835, 3.220, 3.115 and 2.875. The first reading was taken with the staff held upon a benchmark of elevation 100.000. Enter the readings in level book form and find reduce the level of all points by any one methods.   15,K3,CO2

OR

b) (i) Discuss the various obstacles to chaining but not ranging with suitable diagrams.   8,K2,CO2

(ii) Differentiate between Prismatic Compass and Surveyor Compass.   7,K2,CO2