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**Question Paper Code: 53106**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Third Semester

Civil Engineering

15UCE306 - SURVEYING

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Whole circle bearing of line is determined by CO1- R  
(a) Prismatic compass (b) Surveyor compass (c) Theodolite (d) Dumpy level
2. The datum adopted for India is at CO2- R  
(a) MSL at Chennai (b) MSL at Karachi (c) MSL at Gujarat (d) MSL at Bombay
3. Balancing of traverse is done by CO3- R  
(a) Transit rule (b) Mid ordinate rule (c) Trapezoidal rule (d) Prismoidal rule
4. In tangential tacheometry staff is held CO4- R  
(a) Vertical (b) Inclined (c) Horizontal (d) Normal
5. The first point of the curve is called as CO5- R  
(a) Forward tangent (b) Backward tangent (c) Point of intersection (d) Point of curve

PART – B (5 x 3= 15Marks)

6. State the principles of Surveying. CO1- R
7. Compare height of Collimation method and Rise and Fall method. CO2- R
8. What is meant by Gales table. CO3- R
9. State the advantages and disadvantages of Analytic lens. CO4- R
10. Draw a neat sketch of Compound curve and mark the component parts. CO5- R

PART – C (5 x 16= 80Marks)

11. (a) Explain the procedure for Reciprocal and Direct ranging. CO1- U (16)

Or

- (b) The following are the observed bearings of the lines of a traverse ABCDEA with a compass in a place where local attraction was suspected. Calculate the correct bearings of the lines CO1- U (16)

Line	Fore Bearing	Back Bearing
AB	75 <sup>0</sup> 05'	254 <sup>0</sup> 20'
BC	115 <sup>0</sup> 20'	296 <sup>0</sup> 35'
CD	165 <sup>0</sup> 35'	345 <sup>0</sup> 35'
DE	224 <sup>0</sup> 50'	44 <sup>0</sup> 05'
EA	304 <sup>0</sup> 50'	125 <sup>0</sup> 05'

12. (a) The following staff readings were observed successively with a level, the instrument having been moved after the third, sixth and eighth readings. The readings are 2.220, 1.600, 0.980, 2.090, 2.865, 1.260, 0.600, 1.990, 1.405 and 2.685m. Enter the readings in a page of Level book and Calculate the R.L. of points with the staff held on B.M. of 100m. CO2- U (16)

Or

- (b) Explain the various characteristics and uses of Contour. CO2- U (16)

13. (a) The table below gives the lengths and bearings of the lines of a traverse ABCDEA. Calculate the length and bearing of line EA omitted. CO3- U (16)

Line	Length (m)	Bearing
AB	194.1	85 <sup>0</sup> 30'
BC	201.2	15 <sup>0</sup> 00'
CD	165.4	285 <sup>0</sup> 30'
DE	172.6	195 <sup>0</sup> 30'
EA	---	---

Or

- (b) Explain repetition, reiteration methods for measuring horizontal angle. CO3- U (16)

14. (a) (i) Explain how you will determine the Tachometric constants. CO4- U (10)  
(ii) Compare various methods of Tachometry. CO4- U (6)

Or

- (b) The following observations were made using Tachometer with a multiplying constant 100. Calculate the Reduced Level of C. CO4- U (16)  
Assume R.L. of B.M. as 450.50 m.

Instrument Station	Staff Station	Vertical angle	Stadia hair readings
A	BM	$-5^{\circ}30'$	0.905,1.455,2.005
A	B	$8^{\circ}0'$	0.755,1.655,2.555
B	C	$10^{\circ}0'$	1.500,2.250,3.000

15. (a) Two tangents intersect at chainage 1250 m; The angle of intersection is  $150^{\circ}$ . Calculate all the necessary data to set out a circular curve by Rankines method. Assume a peg interval of 20m. CO5- U (16)

Or

- (b) Highlight the steps involved in setting out of a transition curve. CO5- U (16)

