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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

May 2023 Semester End Main Examinations

Programme: B.E. **Semester: III**
Branch: CIVIL ENGINEERING **Duration: 3 hrs.**
Course Code: 19CV3PCGDY **Max Marks: 100**
Course: Geodesy **Date: 17.05.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data if any, may be suitably assumed.

UNIT - I

1 a) While running a survey line AB, it was found that it is obstructed by a building. To overcome the problem of the obstruction, a perpendicular BC, 143.65m long, was erected at B. From C two lines CD and CE were set out at angles 30^0 and 50^0 respectively, from CB. Determine the length BD and BE, if D and E are on the same prolongation of AB. Also determine the lengths CD and CE. **06**

b) Define (i) Precision and accuracy, (ii) Geometry and surveying (iii) Chain and Compass surveying **06**

c) Explain the classification of surveying based on instruments used, nature and purpose of survey. **08**

UNIT - II

2 a) Bring out clearly the advantages and disadvantages of using plane table surveying. **05**

b) Define (i) True Meridian (ii) Magnetic Meridian (iii) Arbitrary Meridian (iv) Dip (v) Declination. **05**

c) The following bearings are observed for a traverse ABCDEA with a compass in a place where local attraction is suspected. Compute the interior angles, apply check and draw a neat plotted traverse along with bearings. **10**

Line	Fore Bearing	Back Bearings
AB	$191^0\ 45'$	$13^0\ 00'$
BC	$39^0\ 30'$	$222^0\ 30'$
CD	$22^0\ 15'$	$200^0\ 30'$
DE	$242^0\ 45'$	$62^0\ 45'$
EA	$330^0\ 15'$	$147^0\ 45'$

UNIT - III

3 a) The following readings are taken on a line at regular intervals in continuously falling ground were 0.415, 1.025, 2.085, 2.925, 3.620, 4.595, 0.715, 2.115, 3.090, 4.405. Determine the reduced levels of various points, if the RL of the point on which the first reading was taken is 185.275 m. Use Rise and Fall method. Apply check. **10**

b) The following notes refer to reciprocal levels taken with level **05**

Instrument station at	Staff readings on		Remarks
	P	Q	
P	1.824	2.748	Distance between P and Q = 1010 m
Q	0.928	1.606	RL of P = 126.386m.

Find (a) RL of Q

(b) The combined correction for curvature and refraction.

c) Define Contour and expalin the characteristics of contour. **05**

OR

4 a) Derive the expression for the horizontal distance, vertical height and the elevation of an inaccessible object by Double Plane method. **10**

b) To determine the elevation of a point A on the top of a hill a flag staff AB of 3 m height was erected and the observation from two stations M and N 50 m apart were made as follows: **10**

Horizontal angle between B and N at M = $65^0\ 25'$

Horizontal angle between B and M at N = $72^0\ 30'$

Angle of elevation of B from M = $12^0\ 24'\ 29''$

Angle of elevation of B from M = $12^0\ 34'\ 32''$

Staff reading on BM when the instrumentat M = 1.785 m

Staff reading on the same BM when instrument at N = 2.305 m

If the RL of the BM is 200.00 m, what is the RL at A.

UNIT - IV

5 a) Define Simple Curve. Explain with neat sketch the elements of a simple curve. **10**

b) Two tangents intersect at a chainage of 3450 m, the deflection angle 50^0 Compute all the data necessary to set out a simple curve of radius 250 m by Rankine's method. The peg interval 20 m. Tabulate the result. **10**

OR

6 a) Explain briefly the procedure to measure the horizontal angle by repetition and reiteration method with a neat sketch and a tabular column **06**

b) Define the followings terms: **08**

i) Face left observations ii) Centering iii) Vertical Circle iv) Trunnion axis

c) Define Triangulation. Explain the classification of Triangulation. **06**

UNIT - V

7 a) Define Global positioning system and explain its Principles and applications **10**

b) Explain Aerial Photogrammetry and terristrial photogrammetry. **10**

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