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: 22CV3PCGDY **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) Define surveying. Discuss in brief the principles of surveying. **05**

b) List the various methods of measuring the distance directly and explain any two methods. **10**

c) A 20 m chain used for a survey was found to be 20.10 m at the beginning and 20.30 m at the end of the work. The area if the plan drawn to a scale of 1cm = 8m was measured with the help of a planimeter and was found to be 32.56 sq cm. find the true area of the field. **05**

UNIT - II

2 a) Define Bench Mark, height of instrument, back sight, turning point and intermediate station. **05**

b) A railway embankment is 10 m wide with side slopes 1.5 :1. Assuming the ground to be level in a direction transverse to the centre line, calculate the volume contained in a length of 120 m, the centre heights at 20 m intervals being in metres 2.2, 3.7 3.8, 2.8, 2.5. **10**

c) List the different types of levelling and explain any two types. **05**

OR

3 a) Briefly explain the methods of interpolation of contours. **06**

b) Discuss the characteristics of contours. **06**

c) The following figures were extracted from a level field book, some of the entries being illegible due to exposure to rain. Insert the missing figures and check the results. Rebook all the figures by the rise and fall method. **08**

Station	B.S	I.S	F.S	Rise	Fall	RL	Remark
1	2.285					232.460	B.M-1
2	1.650		x	0.020			
3		2.105			x		
4	x		1.960	x			
5	2.050		1.925		0.300		
6		x		x		232.255	B.M-2
7	1.690		x	0.340			
8	2.865		2.100		x		
9			x	x		233.425	B.M-3

UNIT - III

4 a) Describe the temporary adjustments of a compass. **06**

b) Define Transiting and Swinging with a Theodolite. Explain the fundamental lines of a theodolite and their relationships. **08**

c) What is local attraction? How is it detected and eliminated? **06**

OR

5 a) Determine the values of included angles in the closed compass traverse ABCD conducted in the clockwise direction, given the following fore bearings of their respective lines: **08**

Line	AB	BC	CD	DA
FB	40°	70°	210°	280°

b) Differentiate between Prismatic compass and Surveyor compass. **06**

c) Explain Bearings. Briefly describe designation of Bearings. **06**

UNIT - IV

6 a) Define the following with respect to a simple curve: **10**
(i) Point of Intersection   (ii) Intersection angle   (iii) Apex of the curve
(iv) Point of tangency   (v) Central angle   (vi) Back tangent   (vii) Forward tangent   (viii) Point of Curve   (ix) Deflection angle
(x) External distance

b) Two tangents intersect at a chainage of 1192 m, the deflection angle being 50°30'. Calculate the necessary data for setting out a curve of 300 m radius to connect two tangents if it is intended to set out the curve by Rankine's method of tangential angles. If the theodolite has least count of 20''. Take peg interval of 20 m, tabulate the actual readings of deflection angles to be set out. **10**

UNIT - V

7 a) Explain the functions and working principle of a Total Station. **10**

b) Describe and Explain the applications of **10**
    i. Aerial photogrammetry   ii. GPS

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