

Hall Ticket Number:

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Code No. : 13169 N/O

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (Civil Engg.) III-Semester Main & Backlog Examinations, Jan./Feb.-2024**Surveying**

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B****Part-A (10 × 2 = 20 Marks)**

Q. No.	Stem of the question	M	L	CO	PO															
1.	The bearing of the line AB is $158^{\circ}20'$ and the angle ABC is $124^{\circ}38'$. What is the bearing of line BC?	2	3	1	1															
2.	State the principles of surveying.	2	1	1	1															
3.	Outline the characteristics of contour lines.	2	1	2	1															
4.	What is reciprocal leveling? Give the advantage of it.	2	1	2	1															
5.	What is the difference between face left observation and face right observation?	2	1	3	1															
6.	What are the fundamental measurements in a total station? How is the horizontal distance obtained?	2	1	3	1,5															
7.	Find the radius of a 4 degree curve.	2	3	4	2															
8.	Draw the elements of a reverse curve with the help of a neat sketch for non parallel straights	2	1	4	1															
9.	Differentiate between vertical photograph and tilted photograph	2	1	5	1															
10.	What are the various types of remote sensing?	2	1	5	1,5															
Part-B (5 × 8 = 40 Marks)																				
11. a)	The following bearings were observed where local attraction was suspected. Calculate the actual bearings	6	3	1	2															
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b)	Briefly explain about topographic surveying.	2	2	1	1,6															
12. a)	The following consecutive readings were taken with a dumpy level and 4 m leveling staff on a continuously sloping ground at 30 m intervals: 0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530 and 2.250 m . The RL of the starting point was 80.750 m	6	3	2	2															
<p>a) Carry out the reduction of heights by the collimation method or rise and fall method</p> <p>b) Determine the gradient of the line joining the first and last points</p>																				
b)	Define contour line and horizontal equivalent	2	2	2	1															

Contd... 2

13/ a)	The following data was obtained during a theodolite traversing:	6	3	3	2																		
	<table border="1"> <thead> <tr> <th>Line</th> <th>Length (m)</th> <th>Included angle</th> </tr> </thead> <tbody> <tr> <td>AB</td> <td>186</td> <td>Angle A = 118°20'</td> </tr> <tr> <td>BC</td> <td>164</td> <td>Angle B = 82°10'</td> </tr> <tr> <td>CD</td> <td>303</td> <td>Angle C = 137°</td> </tr> <tr> <td>DE</td> <td>162</td> <td>Angle D = 73°44'</td> </tr> <tr> <td>EA</td> <td>240</td> <td>Angle E = 128°36'</td> </tr> </tbody> </table>	Line	Length (m)	Included angle	AB	186	Angle A = 118°20'	BC	164	Angle B = 82°10'	CD	303	Angle C = 137°	DE	162	Angle D = 73°44'	EA	240	Angle E = 128°36'				
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	Balance the traverse and also find the independent coordinates of the various stations if the bearing of the line AB is 30°25'.																						
b)	What is the principle of an EDM?	2	2	3	1,5																		
14/ a)	Two tangents intersect at a chainage of 1200m, the deflection angle being 40°. Compute the data for setting out a 400m radius curve by deflection angles. Take 30 m chord length.	6	3	4	2																		
b)	List the methods of setting simple circular curve.	2	2	4	1																		
15. a)	Explain in detail the principle of Differential Global Positioning System. What are the errors in GPS? Explain.	5	2	5	1,5																		
b)	Explain the steps in remote sensing process.	3	2	5	1,5																		
16. a)	Explain in detail the method of indirect ranging for measurement of distance between two points.	4	2	1	1																		
b)	Explain the direct and indirect method of contouring. Also, explain the methods of interpolation of contours	4	2	2	1																		
17.	Answer any <i>two</i> of the following:																						
a)	The chainage of the intersection of two straights having the deflection angle of 50° is 1680.0m. If the radius of the curve is 450 , calculate the following: i. Tangent distance ii. Length of the curve iii. Length of the long chord iv. Apex distance	4	3	3	2																		
b)	The following measurements are made in a closed traverse. Determine the omitted measurements.	4	3	4	2																		
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c)	Classification of UAV systems and applications	4	2	5	1,5,6																		

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	34%
iii)	Blooms Taxonomy Level – 3 & 4	46%
