Total No. of Questions – [3]

Total No. of Printed Pages: 2

G.R. No.	

PAPER CODE	U223-223 (ESE)

May 2023 (ENDSEM) EXAM

S.Y.(Civil Engineering) (AY 2022-23 SEMESTER - II)

COURSE NAME: SURVEYING

COURSE CODE: CVUA22203

(PATTERN 2020)

Time: [1Hr] [Max. Marks: 30]

(*) Instructions to candidates:

1) **Use of scientific calculator is allowed**
2) **Use suitable data where ever required**
3) **All questions are compulsory**

<table>
<tr><th>Question No.</th><th>Question Description</th><th>Max. Marks</th><th>CO mapped</th><th>BT Level</th></tr>
<tr><td>Q.1</td><td>a) Write down steps for marking footing of building on ground.</td><td>[4]</td><td>[CO4]</td><td>[Understand]</td></tr>
<tr><td></td><td>b) Determine the gradient from P to Q and the distance PQ for the tacheometric observations taken with staff held vertical indicated as below:

<table><tr><td>Staff station</td><td>Vertical angle</td><td>Staff readings</td></tr><tr><td>P</td><td>+ 10° 32’</td><td>1.365, 1.920, 2.475</td></tr><tr><td>Q</td><td>+ 5° 6’</td><td>1.065, 1.885, 2.705</td></tr></table>
The instrument is fitted with anallactic lens.</td><td>[6]</td><td>[CO4]</td><td>[Apply]</td></tr>
<tr><td></td><td colspan="4">OR</td></tr>
<tr><td></td><td>c) Derive an equation for finding
i) Horizontal distance ii) Vertical Distance and iii) RL of point
using tacheometer with angle of depression and staff held in vertical position.</td><td>[6]</td><td>[CO4]</td><td>[Apply]</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Q.2</td><td>a) Show following terms, in neat sketch, with usual notations in simple circular curve
i) Deflection angle ii) Apex distance iii) Rear Tangent iv) Length of curve</td><td>[4]</td><td>[CO5]</td><td>[Understand]</td></tr>
</table>

	b) Two tangents intersect at a chainage of 1250m.The angle of intersection is 150°. Calculate all necessary data for setting out a curve of radius 250m using deflection angle method. The peg interval may be taken as 20m. The least count of vernier is 20".	**[6]**	[CO5]	[Apply]
	OR			
	c) Derive formulas for setting out curve by using perpendicular offset from tangent	**[6]**	[CO5]	[Apply]
Q.3	a) Comment on the role of SBPS in Civil engineering.	**[4]**	[CO6]	[Apply]
	b) Name any four SBPS systems and write features of anyone.	**[6]**	[CO6]	[Understand]
	OR			
	c) Discuss any three applications of Remote sensing in Water Resources Engineering	**[6]**	[CO6]	[Apply]