Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec 2024

CE3CO01 Engineering Surveying

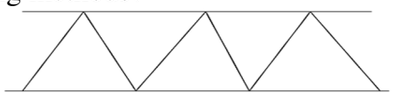
Programme: B.Tech. Branch/Specialisation: CE

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	In which areas does compass surveying is not recommended? (a) Local attraction suspected areas (b) Large areas (c) Undulating areas (d) Crowded with many details	**1**	2	01 06 09	01	01
	ii.	Which of the following method doesn't require the calculation of latitudes and departures? (a) Graphical method (b) Axis method (c) Bowditch's method (d) Transit method	**1**	2	01 06 09	01	01
	iii.	Which of the following is an indirect method of surveying? (a) Chain surveying (b) Tacheometry (c) Compass surveying (d) All of the mentioned	**1**	2	01 06 09	01	01
	iv.	Distance and elevation formulae for fixed hair method assuming the line of sight as horizontal and considering an external focusing type telescope is D = Ks + C. where C is _____. (a) f/i (b) i/f (c) f + d (d) f – d	**1**	2	01 06 09		01

P.T.O.

v.	Which among the following is more expensive process for setting a curve? (a) Linear method (b) Rankine's method (c) Two theodolite method (d) Angular method	**1**	2	01 06 09	01	01
vi.	In linear method of setting out curve, which of the following is not used? (a) Tape (b) Chain (c) Theodolite (d) Compass	**1**	2	01 06 09	01	01
vii.	The figure given below describes which of the following methods?  (a) Quadruple chain triangulation (b) Triple chain triangulation (c) Single chain triangulation (d) Double chain triangulation	**1**	2	01 06 09	01	01
viii.	Which of the following is the most important process in the triangulation system? (a) Towers (b) Signals (c) Base line measurement (d) Reconnaissance	**1**	2	01 06 09	03	01
ix.	The process of measuring depth below the water surface is called _____. (a) Sounding (b) Chaining (c) Traversing (d) Compass traversing	**1**	2	01 06 09	03	01
x.	The plane perpendicular to the camera axis can be given as _____. (a) Vertical plane (b) Horizontal plane (c) Picture plane (d) Azimuthal plane	**1**	2	01 06 09	03	01
Q.2	i.	Define trigonometric levelling.	**2**	1	01 06 09	01	01
	ii.	What is closing error? How it is detected?	**3**	1	01 06 09	01	01
	iii.	Describe the methods of adjusting the traverse with neat diagram.	**5**	2	02 06	01	01

OR	iv.	Describe latitude and departure. Also explain the coordinate system.	**5**	2	02	01	01
Q.3	i.	What are the advantages of tacheometric surveying?	**2**	1	01 06 09	02	01
	ii.	With usual notations, explain the tangential method of tacheometry when- (a) Both angles are angle of elevation (b) Both angles are angles of depression	**8**	3	06 09	02	01
OR	iii.	Explain in detail the use of anallactic lens in external-focussing telescope used in tacheometry. What are its advantages and disadvantages?	**8**	2	06 09	04	01
Q.4	i.	Find the relationship between the degree of a curve and its radius.	**4**	2	04 02 06 09	03	01
	ii.	Mention the various methods of setting out a simple curve. Explain the method of successive bisection of chords.	**6**	2	04 02 06 09	03	01
OR	iii.	Explain compound curve and it's elements with neat diagram.	**6**	3	04 02 06 09	03	01
Q.5	i.	How are the triangulation systems classified? Indicate the use of each system.	**4**	2	06 09	03	01
	ii.	Describe remote sensing in detail.	**6**	2	06 09	04	01
OR	iii.	What are the various corrections to be applied to a measured base line?	**6**	2	06 09	03	01
Q.6		Attempt any two:					
	i.	Explain geodetic surveying in detail.	**5**	2	04 02 06 09	03	01
	ii.	What do you mean by hydrographic surveying? Also give its application in its various areas of civil engineering.	**5**	1	04 02 06 09	02	01
	iii.	Explain aerial photography and its uses in civil engineering.	**5**	2	04 02 06 09	02	01

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Marking Scheme

CE3CO01 Engineering Surveying

Q.1	i)	a) Local attraction suspected areas	**1**
	ii)	a) Graphical method	**1**
	iii)	b) Tacheometry	**1**
	iv)	c) f + d	**1**
	v)	c) Two theodolite method	**1**
	vi)	c) Theodolite	**1**
	vii)	c) Single chain triangulation	**1**
	viii)	c) Base line measurement	**1**
	ix)	a) Sounding	**1**
	x)	c) Picture plane	**1**

Q.2	i.	Correct deifinition of Trigonometric Levelling give 2 marks	**2**
	ii.	Closing error definition- 2 marks Detection and elimination of closing error-1 marks	**3**
	iii.	Four methods give 4 mark Diagram 1 marks	**5**
OR	iv.	Latitude and Departure- 2 marks computation of coordinates- 3 marks	**5**

Q.3	i.	Two advantages- 2 marks	**2**
	ii.	Derivation Both angles are angle of elevation 4 marks Both angles are angles of depression 4 marks	**8**
OR	iii.	Anallactic lens expalanation- 4 marks Advantages of lens 1 mark for each (1 mark * 2)	**8**
		Disadvantages of lens 1 mark for each (1 mark * 2) 2 marks	

Q.4	i.	Relationship between the degree of a curve and its radius By arc definition 2 marks By chord definition 2 marks	**4**
	ii.	Each method of setting out a simple curve 0.5 marks (0.5 mark * 6) 3 marks The method of successive bisection of chords 3 marks	**6**
OR	iii.	Explanation Compound Curve – 2 marks and it elements – 2 marks with neat diagram- 2 marks	**6**

Q.5	i.	Each Classification of the triangulation 1 mark (1 mark * 3) The use of each system 1 mark	**4**
	ii.	Description of Remote sensing in detail.	**6**
OR	iii.	Corrections to be applied to a measured base line and expression for their nature and magnitudes 1 mark to each(1 mark * 6)	**6**

Q.6

	i.	Explanation of Geodetic Surveying in detail- 5 marks	**5**
	ii.	What do you mean by Hydrographic surveying- 2 marks application in its various areas of civil engineering- 3 marks	**5**
	iii.	Explanation Aerial Photography- 3 marks its uses in civil engineering- 2 marks	**5**

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