GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–IV EXAMINATION – SUMMER 2025

Subject Code:3140601   **Date:08-05-2025**
Subject Name: Surveying
Time: 10:30 AM TO 01:00 PM   **Total Marks:70**
Instructions:
   1. **Attempt all questions.**
   2. **Make suitable assumptions wherever necessary.**
   3. **Figures to the right indicate full marks.**
   4. **Simple and non-programmable scientific calculators are allowed.**

Q.1	**(a)**	Explain the orientation by a magnetic needle while performing plane table surveying with the figure.	**03**
	(b)	Discuss electromagnetic spectrum with a neat sketch.	**04**
	(c)	Considering the theodolite, define the following terms: Centering, Transiting, Swinging the telescope, Axis of the plate level, Temporary adjustment, Axis of the telescope, and Line of collimation.	**07**
Q.2	**(a)**	Explain various purposes of the tacheometry survey.	**03**
	(b)	Differentiate between a stadia hair method and a tangential method.	**04**
	(c)	How will you check the accuracy of closed and open traverse?	**07**
		OR	
	(c)	What are the different errors in tacheometry? What are the permissible errors?	**07**
Q.3	**(a)**	What are the advantages and disadvantages of plane tabling?	**03**
	(b)	Enlist various methods of plane tabling and explain the intersection method.	**04**
	(c)	Which are the various equipment used for the measurement of a base- line? Explain Hunter's short base method in detail.	**07**
		OR	
Q.3	**(a)**	What is trigonometric levelling? What are its advantages and disadvantages over direct levelling?	**03**
	(b)	Prepare a list of various uses of theodolite.	**04**
	(c)	On which basic principle GPS is working? Explain satellite constellation.	**07**
Q.4	**(a)**	Draw a neat sketch of a simple circular curve.	**03**
	(b)	Differentiate between the Trapezoidal rule and the Simpson's rule.	**04**
	(c)	How will you find the area of irregular figure with the help of planimeter?	**07**
		OR	
Q.4	**(a)**	Write the advantages of a transit curve.	**03**
	(b)	Explain the methods of correlates. What are its advantages over the normal equation method?	**04**
	(c)	Explain the field procedure for setting out a combined curve.	**07**
Q.5	**(a)**	Enlist the rules for giving weights to the field observations.	**03**
	(b)	Differentiate between plane surveying and geodetic surveying.	**04**
	(c)	How to calculate probable error in measurements from the probability curve of errors?	**07**
		OR	

Q.5 **(a)** Draw a figure of a compound curve with all its elements. **03**

(b) Write a short note on anallatic lens. **04**

(c) In trigonometric levelling, derive the formulae for the horizontal distance and elevation in the case when the base of the object is inaccessible, instrument stations and objects are in the same vertical plane, and both instrument axes are at the same level. **07**

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