GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–IV (NEW) EXAMINATION – SUMMER 2021

Subject Code:3140601　　　　　　　　　　　　　　　**Date:03/09/2021**

Subject Name:Surveying

Time:02:30 PM TO 05:00 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.**

		MARKS
Q.1	**(a)** Explain any three instruments of plane table survey with sketch	**03**
	(b) List the fundamental lines of a theodolite and explain briefly the desired relationships between these lines	**04**
	(c) Define closing error and explain balancing of Traverse.	**07**
Q.2	**(a)** Draw the neat sketch of simple circular curve showing various elements of it.	**03**
	(b) State the trapezoidal rule and Simpson's rule. What is the limitation of Simpson's rule?	**04**
	(c) Explain method of Intersection and Traversing for plane tabling	**07**

OR

	(c) A closed traverse was conducted round an obstacle and the following observations were made. Work out the missing quantities	**07**

Side	Length (m)	Azimuth
AB	500	98°30'
BC	620	30°20'
CD	468	298°30'
DE	?	230°0'
EA	?	150°10'

Q.3	**(a)** Explain Zero circle of planimeter	**03**
	(b) List and explain different types of transition curves	**04**
	(c) Calculate the ordinates at 10 metres distances for a circular curve having a long chord of 80 metres and a versed sine of 4 metres.	**07**

OR

Q.3	**(a)** What is the field procedure of the long chord method in setting a curve?	**03**
	(b) Derive formula for height h and distance D in trigonometric leveling when two instruments are set at same level.	**04**

	(c)	What is trigonometric leveling? Derive the equation for distance and RL of object when object is not accessible and instrument axis is at different level but in same vertical plane.	**07**
Q.4	**(a)**	Explain parallax bar	**03**
	(b)	Differentiate between (i) Side slope and tranverse slope (ii) contour plan and contour gradient	**04**
	(c)	Explain the method of correlates in theory of errors	**07**

OR

Q.4	**(a)**	Explain stadia method in tacheometry	**03**
	(b)	Discuss the salient features of accidental errors.	**04**
	(c)	What are the factors that affect the selection of site for base line?	**07**
Q.5	**(a)**	What are the various corrections for base line? Discuss what is base net	**03**
	(b)	What do you mean by analytic lens? How are they useful in techeometer?	**04**
	(c)	Explain Total station giving its uses and different functions	**07**

OR

Q.5	**(a)**	Define (i) geodetic surveying, (ii) base line, (iii) well-conditioned triangles	**03**
	(b)	Explain the practical use and benefits of global positioning system (GPS)	**04**
	(c)	Derive the equations for horizontal and vertical distances for inclined sights with staff vertical	**07**

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