

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2020

Subject Code:3140601**Date:09/02/2021****Subject Name:Surveying****Time:02:30 PM TO 04:30 PM****Total Marks:56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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| Q.1 | (a) Define Plane table surveying with its advantages and disadvantages. | 03 |
| | (b) What is principle of plane tabling? State sources of errors during plane tabling. | 04 |
| | (c) What is use of planimeter? When will you apply zero circle? How do you find the zero circle? | 07 |
| Q.2 | (a) What is least count? How will you find least count of an instrument? | 03 |
| | (b) Which are the methods of measuring horizontal angles? Briefly describe repetition method. | 04 |
| | (c) Explain the temporary adjustments of theodolite. | 07 |
| Q.3 | (a) Define the term probable value and probable error. | 03 |
| | (b) Discuss the method of achieving horizontal and vertical control in setting out works. | 04 |
| | (c) Enumerate different rules used for calculation of area and discuss in detail the Simpson's one third rule. | 07 |
| Q.4 | (a) Differentiate between plane surveying and geodetic surveying. | 03 |
| | (b) What do you mean by strength of figure in triangulation work? | 04 |
| | (c) Find out minimum height of signal required at B so that the line of sight may not pass near the ground than 1.5 m if A and B two stations are 50 km apart and have elevations 250 m and 230 m respectively. Ground may be assumed to have uniform level of 200 m. | 07 |
| Q.5 | (a) Explain principle of tachometry. | 03 |
| | (b) What is tacheometer? Explain the procedure of finding its coefficient in the field. | 04 |
| | (c) Derive the expression for horizontal and vertical distances by the fixed hair method when the staff is held vertically & the measured angle is that of elevation. | 07 |
| Q.6 | (a) What is transition curve? State the requirements of a transition curve. | 03 |
| | (b) Derive the equation for degree of curve on the basis of (i) Arc definition (ii) Chord definition. | 04 |
| | (c) Draw the sketch explaining elements of simple circular curve. Define: Point of intersection, angle of deflection, point of curvature, tangent distance, long chord, mid ordinate, external distance. | 07 |
| Q.7 | (a) Explain Electromagnetic spectrum. | 03 |
| | (b) Explain working principle of GPS. | 04 |
| | (c) What is GPS? Give its uses and application. | 07 |

Q.8	(a)	Explain basic Principle of EDM.	03
	(b)	What is GIS? Discuss component of GIS.	04
	(c)	What is total station? Describe uses of total station in field of civil engineering.	07
