

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.

- 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**

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