

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (OLD) EXAMINATION – WINTER 2018****Subject Code:130601****Date:22/11/2018****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.

- Q.1 (a)** What is Orientation? Discuss the different methods of orientation of a plane table. **07**
- (b)** Explain with sketches, various instruments used in plane table surveying. **07**

- Q.2 (a)** Define the following terms **07**
1. Error of closure 2. Axis of telescope 3. Plunging 4. Face Right
5. Departure 6. Line of collimation 7. Swinging
- (b)** The lengths and bearing of lines of a closed traverse PQRSTUP are given below. **07**
Calculate the corrected consecutive coordinates of lines.

Line	PQ	QR	RS	ST	TU	UP
Length (m)	151	258	270	121	204	175
Bearing (Θ)	160°	59°	320°	280°	223°	115°

OR

- (b)** Describe the methods of balancing the closing error in a closed traverse. **07**
- Q.3 (a)** What are the different methods of theodolite traversing? Describe any one of them in detail. **07**
- (b)** Derive the expressions for computing horizontal distance and elevation in trigonometric leveling while base of the object is inaccessible and instrument stations are in the same vertical plane with the elevated object for the instrument axis at same level. **07**

OR

- Q.3 (a)** What are different methods of designation of curve? Derive a relationship between the radius of curve and degree of curve. **07**
- (b)** The Top of church spire O was sighted from two points A and B, being at different levels and in line with O. The horizontal distance between A and B was 150 m. The angle of elevation from A and B to O were 35° and 20° , respectively. The angle of elevation from B to a vane 3.0 m above the foot of the staff held at A, was 15° . The height of instrument at A and B were 1.750 and 1.500 m, respectively. The Reduced level of B was 225.225 m. Determine the reduced level of O, and horizontal distance of the spire from B. **07**

- Q.4 (a)** What are the methods of computation of area from a plotted plan? **07**
- (b)** Two straight lines intersect at a chainage of 2150.00 m and the angle of intersection is 120° . If the degree of curve 2° , determine the following **07**
- a) Tangent length b) Length of Curve c) Length of long Chord
d) Apex Distance e) Mid Ordinate f) Chainage of starting point of curve.

OR

- Q.4 (a)** How will you find out the area of irregular figure with the help of planimeter? **07**
- (b)** What are various types of transition curve? Describe them briefly with neat sketches. **07**

- Q.5 (a) What is meant by sounding? Discuss various methods of taking soundings. **07**
(b) Discuss the method of achieving horizontal and vertical control in setting out works. **07**
- OR**
- Q.5 (a) Explain the procedure of setting out of culvert. **07**
(b) Write a short note on shore line survey. **07**

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