Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (OLD) - EXAMINATION - SUMMER 2017

Subject Code: 130601 Date: 31/05/2017

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) Explain the procedure for setting up of Plane Table.

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(b) Explain the horizontal control and vertical control for setting out works.

07Aid **07**

- Q.2 (a) Explain the following Term:1) Compound Curve 2) Point of intersection 3) Mid ordinate 4) Apex Distance 5) Tangent Length 6) Transition Curve 7) Reverse Curve
 - **(b)** Explain the procedure of setting out building foundation.

07

OR

- (b) Enumerate different types of the methods for measuring the volume and explain 07 any one in brief.
- Q.3 (a) The following are the length and bearings of the sides of a closed traverse PQRS. 0' Find the length and bearing of line SP.

Line	Length (m)	Bearing
PQ	235.00	338°
QR	317.0	82°
RS	215.00	167°
SP	?	?

(b) Discuss the Repetition method of horizontal angle measurement using Theodolite.

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OR

- Q.3 (a) Define Latitude and Departure. Differentiate between the consecutive and 07 independent coordinates.
 - (b) Prepare Gale's Traverse table to adjust the closing error of the close traverse 07 ABCDA for the following data.

Line	Length (m)	Corrected (bearings)
AB	48	118°
BC	32	58°
CD	31	337°
DA	39	296°

- Q.4 (a) What are the elements of simple circular curve? Define with figure and give their orelationship.
 - (b) Two tangents intersect at a chainage of 2100m of the deflection angle being 25°. **07** Calculate the following quantities for setting out a curve of radius 275m.
 - 1) Tangent Length 2) Length of Long chord 3) Length of curve
 - 4) Chainage of point of commencement and tangency 5) Apex distance

- Q.4 (a) Briefly discuss deflection angle method and two theodolite method of setting out 07 simple curve.
 - **(b)** Two tangents intersect at a chainage 100 chains+15links and the deflection angle is 45°. a circular curve of 250 m radius is to be set out to connect to tangent. Calculate the necessary data for setting out the curve by method of offsets from chord produce. Length of chain is 20 m and peg interval 20m.
- Q.5 (a) Derive an expression for the distance and height for the trigonometric levelling. 07 Case of inaccessible and instrument axis at different levels.
 - (b) To determine the height of mobile tower a theodolite was kept at two stations P₁ and P₂ 200m apart. P₁ being nearer to the mobile tower, the reading at the BM of RL 820 m were 1.45m from station P₁ and 2.15m from P₂. The vertical angles to the top of the mobile tower where 18°30' and 8° 30' from stations P₁ and P₂ respectively. Find the horizontal distance & RL of the top of the mobile tower.

OR

- Q.5 (a) Explain the different instruments used in measurement of sounding.
 - (b) Explain procedure for area measurement by planimeter. Also discuss components parts of planimeter.
 - (C) Derive an expression for prismoidal formula for volume 04
