

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- III(OLD) EXAMINATION – SUMMER 2019

Subject Code:130601

Date:01/06/2019

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.

- Q.1** (a) Enlist different methods of plane table surveying and explain any one in detail. **07**
 (b) Explain clearly the use of planimeter (with sketch) to calculate the area of an irregular figure. **07**

- Q.2** (a) Discuss Repetition method of horizontal angle measurement using theodolite. **07**
 (b) Explain two theodolite method of setting out of curve. **07**

OR

- (b) Enlist different types of transition curve and explain any one. **07**

- Q.3** (a) Describe briefly the uses of various accessories of a plane table. **07**
 (b) Derive formula for height h and distance D in trigonometric leveling when two instruments are set at same level. **07**

OR

- Q.3** (a) Explain different methods of adjusting closing error in theodolite traverse. **07**
 (b) An instrument was set at P and the angle of depression to a vane 2 m above the foot of staff held at Q was $5^{\circ}36'$. The horizontal distance between P and Q was known to be 3000 m. Determine the RL of the staff station Q, given that staff reading on a BM of elevation 436.050 was 2.865 m. **07**

- Q.4** (a) Explain different instruments used in measurement of sounding. **07**
 (b) Following are the length and bearings of the sides of a closed traverse ABCD. Find out the length and bearing of line DA. **07**

Line	Length (m)	Bearing
AB	75.50	$139^{\circ}30'$
BC	195.00	$35^{\circ}50'$
CD	38.10	$339^{\circ}10'$
DA	?	?

OR

- Q.4** (a) Explain the procedure of setting out of a bridge. **07**
 (b) Two tangent intersect at a chainage of 1320.50 m. The deflection angle being 24° . Calculate the following quantities for setting out a simple circular curve of radius 275m. (i) Tangent Length (ii) Length of Long Chord (iii) Length of Curve (iv) Chainage of point of commencement and tangency (v) Apex Distance (vi) Versed sine of curve. **07**

- Q.5** (a) Write short note on (1) Compound curve (2) Reverse curve (3) Vertical curve. **07**
 (b) Describe various methods of locating soundings in hydrographic surveying. **07**

OR

- Q.5** (a) Explain temporary adjustment of theodolite. **07**
 (b) Derive equation for Simpson's rule to find out area of an irregular boundary. **07**
