

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2130601

Date:21/05/2018

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.

		MARKS
Q.1	(a) What is principle of plane tabling? State sources of errors during plane tabling.	03
	(b) Justify the usefulness of theodolite by differentiating it with dumpy level.	04
	(c) What is Gale's traverse table? Calculate length and bearing of line EA if Length and bearing of other lines are as below AB-204m, $87^{\circ} 30'$, BC-226m, $20^{\circ} 20'$, CD-187m, 280° , DE-192m, $210^{\circ} 3'$	07
Q.2	(a) Why it is necessary to provide transition curve before and after circular curve.	03
	(b) Describe the procedure of indirect leveling on steep ground	04
	(c) Enlist different methods of plane tabling and discuss any two methods in detail.	07
	OR	
	(c) Schematically describe different components of compound curve and find out chainage of tangents points and PCC if deflection angles and radius of two curves are $40^{\circ} 30'$, $36^{\circ} 24'$ and 600 m, 800 m respectively. Chainage of intersection point is 824 m.	07
Q.3	(a) State the procedure for temporary adjustment of theodolite	03
	(b) Find out RL of top of hill if 3m flag is put on that hill and angle measured with two sitting of theodolite in same plane and same level with top of flag are 20° and 28° respectively. HI = 1.5 and TBM= 100.0 m. Distance between two theodolite is 5.0 m	04
	(c) Explain setting up of plane tabling and discuss merits and demerits of plane table survey	07
	OR	
Q.3	(a) Explain the function of U-fork, alidade and spirit level	03
	(b) Give the reason of taking readings for (i) face left and face right (ii) window A and window B while using theodolite	04
	(c) Explain basic parts of theodolite with its function and tabulate the data for repetition method for measurement of horizontal angle by theodolite	07
Q.4	(a) Calculate area of figure for IR=7.8, FR=3.8 and M=100 sq cm by planimeter with anchor point outside the figure. The zero mark on the dial passed the fixed index twice in the clockwise direction.	03
	(b) In planimeter define (i) Zero circle (ii) Multiplier constant	04

	(c)	Enumerate different rules used for calculation of area and discuss in detail the Simpson's one third rule	07
		OR	
Q.4	(a)	How would you determine the capacity of reservoir?	03
	(b)	Schematically describe the method of setting out foundation trenches of a building.	04
	(c)	Enlist different methods of measurement of volume and discuss the method of finding out volume from given contour map.	07
Q.5	(a)	Define (i) Normal chord (ii) Long chord (iii) Mid-ordinate	03
	(b)	Derive the equation for degree of curve on the basis of (i) Arc definition (ii) Chord definition	04
	(c)	Briefly describe the principle of linear method for setting out of circular curve and derive the equation for setting out circular curve by offset from long chord method	07
		OR	
Q.5	(a)	Explain the method of locating soundings by method of two angles from the shore	03
	(b)	Briefly describe (i) Echo sounding (ii) Rankine method of setting out of curve	04
	(c)	What is trigonometric leveling? Derive the equation for distance and RL of object when object is not accessible and instrument axis is at different level but in same vertical plane.	07
