Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:140601 Date:17/05/2019

Subject Name: Advanced 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)** Explain the procedure for finding the multiplying constant and additive constant in tacheometric surveying. **07**

(b) The following observations were made using a tachometer fitted with an analytic lens, the multiplying constant being 100. Calculate the distance AB and RL of A and B. Find the gradient of the line AB**.** **07**

Inst. Station	H.I.	Staff station	W.C.B.	Vertical angle	Staff reading	remarks
O	1.550	A	30°30’	4°30’	1.155 , 1.755, 2.355	R.L. of O = 200.00 m
		B	75°30’	10°15’	1.250 , 2.000 , 2.750	

Q.2 **(a)** What is base line? How it is selected? Describe any one procedure of its extension. **07**

(b) Describe Principal of Triangulation and show schematically different sets / orders of triangulation Figures. **07**

OR

(b) Write short note on Total Station. State its applications in the field of civil engineering. **07**

Q.3 **(a)** What is the weight of a quantity? Discuss various laws of weights. **07**

(b) Determine the most probable value of the angles of triangles ABC, given by the following data. **07**

Angle	weight
A = 62° 14’ 12”	1
B = 48° 12’ 14”	3
C = 69° 33’ 28”	2

OR

Q.3 **(a)** Define the following terms : **07**

1- Longitude , 2- Celestial sphere, 3- Vertical circle, 4 - Visible horizon , 5 – Zenith, 6- Celestial equator, 7 - Nadir

(b) What are the various uses of aerial camera? Describe with neat sketch its essential parts. **07**

Q.4 **(a)** Write short note on Geospatial analysis. **07**

(b) Two points A and B which appear in a vertical photograph taken from a camera having focal length of 220 mm and from an altitude of 2800 m, have their elevations as 500 m and 700 m respectively. Their corrected photo co-ordinates are as under **07**

Point	Photo co-ordinate	
	x , mm	y, mm
a	+23.8	+16.4
b	-13.6	-29.7

Determine the length of the ground line AB.

OR

Q.4 **(a)** What do you mean by GPS? Give an overview of GPS. Describe briefly the uses and applications of GPS. **07**

(b) Write the applications of GIS in civil engineering field. **07**

Q.5 **(a)** Write the basic principle of remote sensing? Discuss the components of remote sensing in brief. **07**

(b) Define GIS. Discuss the key components of GIS with figure. **07**

OR

Q.5 **(a)** Explain with sketch electromagnetic wave & spectrum. **07**

(b) Explain integration of remote sensing and GIS. **07**

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