Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 140601 **Date: 06/06/2017**

Subject Name: ADVANCED 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 are the different systems of tacheomatric survey? Explain the stadia system. **07**

(b) Write theory of anallactic lens for horizontal sight. **07**

Q.2 **(a)** What is triangulation? Classify and explain triangulation systems. **07**

(b) What is base line? What are the instruments required for measurement of base line? Explain field work for the measurement of base line. **07**

OR

(b) Following observations were taken from two traverse stations by means of tacheometer fitted with an anallactic lens. The constant of the instrument is 100. **07**

Instrument station	Staff station	Ht. of instrum	Bearings	Vertical angle	Staff readings
A	C	1.40	226° 30'	+10° 12'	0.765, 1.595, 2.425
B	D	1.45	84° 45'	-12° 30'	0.820, 1.840, 2.860

Co-ordinates of station A are 212.3 N , 186.8 W
Co-ordinates of station B are 102.8 N , 96.4 W
Compute the length and gradient of the line CD if B is 6.5 m higher than A.

Q.3 **(a)** What are different types of errors of measurement? Explain the laws of accidental errors. **07**

(b) Explain how the most probable values of quantities are determined? **07**

OR

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

(1) Zenith and Nadir
(2) Azimuth
(3) Hour circle
(4) Hour angle
(5) Ecliptic
(6) Solastices
(7) Celeatial horizon.

(b) Write short note on spherical trigonometry and spherical triangle. **07**

Q.4	**(a)**	What is the terrestrial photogrammetry? Explain basic principles of terrestrial photogrametry .	**07**
	(b)	Describe aerial photogrammetry and aerial camera.	**07**

OR

Q.4	**(a)**	A vertical photographs were taken at an altitude of 1300m above m.s.l. Determine scale of the photograph for terrain lying at elevation of 80m and 300 m if the focal length of the camera is 15 cm	**04**
	(b)	A section line AB appears to be 10.16 cm on a photograph for which the focal length is 16 cm . The corresponding line measures 2.54 cm on a map which is to a scale of 1/50000. The terrain has an average elevation of 300m above m.s.l. Calculate the flying altitude of the aircraft above m.s.l. when the photograph was taken.	**03**
	(c)	Write short note on stereoscope.	**07**

Q.5	**(a)**	What is E.D.M.? Explain total station in brief.	**07**
	(b)	What is remote sensing? Explain global positioning system in brief.	07

OR

Q.5	**(a)**	What is G.I.S.? Write functions and applications of G.I.S.	**07**
	(b)	Describe image interpretation techniques in brief.	**07**

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