Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV EXAMINATION – WINTER 2015

Subject Code: 140601 Date:30/12/2015

Subject Name: Advanced Surveying

Time: 02:30pm to 05:00pm 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 principle of tacheometry. Derive the expression for horizontal & vertical distances by the tangential method when both the angels measured are those of elevation.	**07**
	(b)	A leveling staff is held vertical at a distance of 150 m, 200 m & 250 m from the axis of tacheometer & the staff intercept for horizontal sight are 1.495 m, 2.0 m & 2.505 m respectively. Find the constants of the instrument.	**07**
Q.2	**(a)**	What is triangulation? Explain the principle of triangulation.	**07**
	(b)	What are the points to be considered while selecting the site for a base line?	**07**
		OR	
	(b)	Write short note on signals.	**07**
Q.3	**(a)**	Explain different types of errors in survey works?	**07**
	(b)	Following three angles A, B & C were observed at a station X closing the horizon along with their probable errors of measurements $A = 85^0\ 35'\ 28'' \pm 2''$ $B = 156^0\ 29'\ 30'' \pm 3''$ $C = 117^0\ 55'\ 12'' \pm 4''$ Calculate the corrected values of angels A , B & C.	**07**
		OR	
Q.3	**(a)**	What is the weight of a quantity? Discuss various laws of weight.	**07**
	(b)	Explain the method of least squares.	**07**
Q.4	**(a)**	Define (i) Latitude (ii) Longitude (iii) Altitude (iv) Vertical circle (v) Azimuth (vi) Hour angle (vii) Nadir	**07**
	(b)	Enlist the method of determination of Azimuth & explain any one method in detail.	**07**
		OR	
Q.4	**(a)**	What is relief displacement? Derive an expression for relief displacement in a vertical photograph.	**07**
	(b)	The scale of an aerial photograph is 1 cm = 100 m. The photograph size is 20 cm x 20 cm. Determine the numbers of photographs required to cover an area of 100 sq. km, if the longitude lap is 60 % & side lap is 30%.	**07**
Q.5	**(a)**	Write short note on EDM.	**07**
	(b)	Write short note on Total station.	**07**
		OR	
Q.5	**(a)**	Define remote sensing. Explain components of remote sensing.	**07**
	(b)	Define GIS. What are the applications of GIS in Civil Engineering?	**07**

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