

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018

Subject Code:2140601

Date:05/12/2018

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) Describe principle of stadia method. **03**
- (b) What do you mean by analytic lens? How are they useful in techeometer? **04**
- (c) Describe in details how total station has brought revolution in various field of surveying? **07**

- Q.2**
- (a) Explain principle of tacheometry **03**
- (b) Explain the procedure for finding the co-efficient in the field for stadia constants K and C by various methods **04**
- (c) A tacheometer was set up at a station P and the following readings were obtained on a staff vertically held. Calculate the horizontal distance PQ and R.L of Q, when the constants of instrument are 100 and 0. **07**

Inst. Station	Staff Station	Vertical angle	Hair readings (m)			Remark
P	B.M	-5° 40'	1.000	1.600	2.200	R.L.of B.M = 175.50 m.
	Q	+6° 20'	0.600	1.200	1.800	

OR

- (c) Derive the expression for horizontal and vertical distances by the fixed hair method when the staff is held vertically & the measured angle is that of elevation **07**
- Q.3**
- (a) What is the object of the geodetic surveying? **03**
- (b) Define base line and discuss its selection criteria **04**
- (c) Calculate the sun's azimuth and hour angle at sunset at a place in latitude 40° N its declination is 20° N **07**

OR

- Q.3**
- (a) Define True Error, Residual Error and Most probable error **03**
- (b) Describe the different aspect of field work in triangulation **04**
- (c) What is the weight of a quantity? Discuss various laws of weights. **07**
- Q.4**
- (a) What are the various corrections for base line? Discuss what is base net **03**
- (b) Define Azimuth, Zenith, Nadir and Celestial pole **04**
- (c) Calculate the total number of photograph require to cover of 10 km X 20 km longitudinal overlap is 70%, side overlap is 30%, focal length of camera used is 20cm, Scale of the photograph is 1:10000, Size of the photograph is 23cm X 23 cm. **07**

OR

- Q.4**
- (a) Define photogrammetry & explain uses of photogrammetry **03**
- (b) Derive equation for scale of vertical photograph **04**
- (c) Define Tilt, Mosaics, Isocentre, Side lap, Crab, Principle Point, Oblique photo **07**
- Q.5**
- (a) Discuss active and passive remote sensing. **03**
- (b) What is total station? Explain the uses of Total station **04**

- (c) Describe all key components of GIS and explain the use of GIS in the field of engineering **07**

OR

- Q.5** (a) Explain methods of digital image processing **03**
(b) List various applications of remote sensing **04**
(c) What do you mean by image interpretation? Describe at least five elements of visual image interpretation. **07**
