

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

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