

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV(New) EXAMINATION – SUMMER 2016

Subject Code:2140601

Date:03/06/2016

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.

		MARKS
Q.1	Multiple choices	14
1	The relief displacement of a minar 72 m high on photograph is 7.2 mm and its top appears 10 cm away from principal point. The flying height of the camera, is a) 2000 m. b)1500 c) 500 d)1000	
2	Prime vertical is great circle passing through a) Celestial pole b) observation station,c)zenith, nadir east &west pole of horizon	
3	Which is position of star when hour angle become zero? a) star on prime vertical b) star on culmination c)star on elongation d) star on horizon	
4	The station which is selected close to the main triangulation station, to avoid intervening obstruction, is not known as a) eccentric station b) satellite station c) pivot station d) false station	
5	Mosaics are a) single photograph b)maps are prepared from photos c) combination of two or more photos d)combination of two or more images	
6	Stereoscope is used for a) to fuse overlapped photo from 3 –d view b)measure elevation difference c)relief displacement d)co-ordinates of points	

- 7 The scale of the photography taken from a height of 3000 m, with a camera of focal length 15 cm, is
a) 1 : 10,000 b) 1:15000 c) 1:20000 d) 1:30000
- 8 The station where observations are not made, but the angles at the station are used in triangulation series, is known as
a) Pivot station b) subsidiary station c) satellite station d) main station
- 9 Which of the following methods of contouring is most suitable for a hilly terrain?
a) Direct method b) square method c) cross-sections method d) tachometric method.
- 10 Base extension can be done
a) by prolongation b) by double sights c) both a and b d) none of above
- 11 Systematic errors are also known as
a) positive error b) cumulative error c) negative error d) random error
- 12 Accidental errors follow the law of
a) probability b) gravity c) physics d) mathematics
- 13 Total station is a combination of
a) Tachometer and theodolite b) dumpy level and compass c) auto level and digital level d) an electronic theodolite and EDM
- 14 GPS use for
a) Preparing maps b) ground truth verification c) for navigation d) all of above

Q.2 (a) Define Tachometry. Explain the procedure for finding the coefficient in the field for stadia constants K and C by various methods. 03

(b)

Ins. Station	Staff Station	Bearing	Vertical Angle	Cross Reading T b	Horizontal
P	Q	82°	+ 3° 52'	1.65 3.15	
	R	144°	- 5° 52'	1.955 3.765	

Constant are 100 & 0.3 . Staff held Vertical.
Find The Gradient From Q to R.

	(c) Define weight of an observed quantity. indirect observation, condition quantity ,true value, direct observation, true error MPV	07
	OR	
	(c) Explain the method of correlates in theory of errors	07
Q.3	(a) Describe how total station has brought revolution in surveying?	03
	(b) Describe briefly the salient features of Total Station. State its field applications.	04
	(c) Define Azimuth, Zenith, Latitude, and Longitude. Celestial pole, vertical circle, nadir.	07
	OR	
Q.3	(a) What is base line and How is it selected? Describe procedure of its extension.	03
	(b) What are the various corrections for base line? Discuss in brief what is base net?	04
	(c) The altitude of two proposed station A & B 100 km apart are respectively 620 m and 700 m. The intervening of obstruction situated at C, 70 km from A has an elevation of 478 m. Ascertain if A & B are intervisible and if necessary find by how much B should be raised. Show that the line of sight must now where B less than 3 m above surface of ground.	07
Q.4	(a) State the various points to be broadly considered in selection of station in triangulation figures.	03
	(b) Describe the different aspect of field work in triangulation.	04
	(c) Define Tilt, Isocentre, Side lap, Crab, Principle Point, Oblique photo, exposure station.	07
	OR	
Q.4	(a) What are the uses of aerial Photogrammetry?	03
	(b) Difference between terrestrial and aerial photogrammetry.	04
	(c) Calculate the total number of photograph require to cover of 15 km X 15 km longitudinal overlap is 60%, side overlap is 30%, focal length f=150 mm, Scale of the photograph is 1:10000, Size of the photograph is 23cm X 23 cm.	07
Q.5	(a) Explain basic principle of Remote Sensing. Short note on idealized remote sensing.	03

- (b) Explain the components of remote sensing. **04**
- (c) Write function of G.I.S .short note on geospatial data. **07**
- OR
- Q.5** (a) Discuss basic principle of operation and different techniques for E.D.M. Instruments. **03**
- (b) Briefly discuss digital image processing. **04**
- (c) Find the most probable value of the angles P,Q R of the tringle PQR from the following observations **07**
- P= $62^{\circ} 23' 35''$, Q= $54^{\circ} 12' 22''$, R= $63^{\circ} 24' 06''$
