

END TERM EXAMINATION

FOURTH SEMESTER [B.TECH] MAY-JUNE 2016

Paper Code: ETCE 208

Subject: Advanced Surveying

Time : 3 Hours

Maximum Marks : 75

Note: Attempt any five questions including Q. No. 1 which is compulsory.
Assume any missing data suitably, if not given.

Q1. Attempt the following:

(5x5=25)

- Obtain an expression for the difference in level between two points by reciprocal vertical angle readings from two stations. Height of object and targets should not be ignored.
- Define weight of an observation and discuss the laws of weights.
- Discuss the instruments used in the reconnaissance surveying.
- What are the system of coordinates employed to locate the position of a heavenly body?
- Explain how the equation of time, apparent time and mean time are related to each other?

Q2. Discuss the essential parts of an aerial camera with neat sketch. Derive the relation between principal point, Plumb point and isocentre. (12.5)

- Q3. (a) Define Air base, Principal point, Isocentre and Isometric parallel. (4)
(b) Two points A and B having elevations of 500m and 300m above datum appear on the vertical photograph having focal length of 20cm and flying altitude of 2500m above datum. Their corrected photographic coordinates are as follows:

Point	Photographic Co-ordinates	
	X(cm)	Y(cm)
A	+2.65	+1.36
B	-1.92	+3.65

Find the length of ground line AB.

(8.5)

- Q4. (a) The standard time meridian in India is $82^{\circ}30'E$. If the standard time at any instant is 20 hours 24 minutes 6 seconds, find the local mean time for two places having longitudes (a) $20^{\circ}E$, (b) $20^{\circ}W$. (6)

(b) Write a note on "Azimuth by observation on Polaris." (6.5)

- Q5. (a) Find the L.S.T. at place in longitude $85^{\circ}20'E$ at 6^h30^m P.M., G.S.T. at G.M. N being $6^h32^m12^s$. (7.5)

(b) Write a note on Observation for time by meridian transit of star (or sun). (5)

Q6. Adjust the following angles closing the horizon: (12.5)

A = $110^{\circ}20'48''$	wt. 4
B = $92^{\circ}30'12''$	wt. 1
C = $65^{\circ}12'00''$	wt. 2
D = $100^{\circ}57'04''$	wt. 3

Find the error and the corrected angles.

P.T.O.

ETCE-208

P/h

- Q7. (a) An angle has been measured under different field conditions, with results as follows: (6.5)

28°24'20"	28°24'00"
28°24'40"	28°24'40"
28°24'40"	28°24'20"
28°25'00"	28°24'40"
28°24'20"	28°25'20"

Find i) the probable error of single observation ii) probable error of the mean.

- (b) Explain the method of least squares with a suitable example. (6)

- Q8. (a) A theodolite was set at a distance of 200m from a tower. The angle of elevation to the top of the parapet was 8°18' while the angle of depression to the foot of the wall was 2°24'. The staff reading on the B.M. having R.L. 248.362 with the telescope horizontal was 1.286m. Find the height of the tower and R.L. of the top of parapet. (8.5)
- (b) Explain the term "shore line survey". (4)
