END TERM EXAMINATION

FOURTH SEMESTER [B.TECH] MAY-JUNE 2018

Paper Code: ETCE-208   Subject: Advanced Surveying

(Batch 2013 Onwards)

Time: 3 Hours   Maximum Marks: 75

Note: Attempt all questions as directed. Internal choice is indicated. Assume any missing data suitably, if not given.

(5x5=25)

Q1 Attempt **any five** parts:-
(a) Write the steps involved in measurement of horizontal angle by repetition method?
(b) Obtain an expression for the difference in level between two points by reciprocal vertical angle readings from two stations.
(c) Explain the procedure to set out circular curve using Rankine's method of deflection angle using necessary sketch.
(d) Briefly explain the different sequences of route surveying.
(e) What is equation of time? Show how it vanishes four times in a year?
(f) Define the following:-
    (i) Air base
    (ii) Tilt displacement
    (iii) Isocentre
(g) Derive the parallax equation for determining height from a pair of vertical photographs.

Q2 A theodolite was set up at a distance of 200m from a tower. The angle of elevation to the top of the parapet was 8°20 while the angel of depression to the foot of the wall was 2°26'. The staff reading on the B .M having R.L. of 248.345 with the telescope horizontal of 1.248m. Find the height of the tower and R.L of the top of the parapet **(12.5)**

OR

Adjust the angles A and B, observations of which give

A=20°10'10"   weight 6
B=30°20'30"   weight 4
A+B=50°30'50"   weight 2

Q3 Explain the setting out of sewers and pipelines with suitable figures? **(12.5)**

OR

How is the computation of earthwork is computed for a civil work? Explain briefly.

Q4 What are parallax and refraction and how do they affect the measurement of vertical angles in astronomical works? Give rough values of corrections necessary when measuring a vertical angle of 45°. **(12.5)**

OR

Find L.S.T at a station in longitude 76°20'E at 9.30 AM (Indian Zone Time) on August 10.0. On that date at G.M.N. the R.A of mean sun is 9h13m30.09s.

Q5 How do you determine the scale of an aerial photograph? What do you understand by the term datum scale and average scale, explain briefly? **(12.5)**

OR

A line PQ 2100m long, lying at an elevation of 400m measures 10.09cm on vertical photograph. If the focal length of the lens is 24cm determine the scale of the photograph in the area. The average elevation of which is 600m.

****

P