

(Please write your Exam Roll No.)

Exam Roll No.

END TERM EXAMINATION

FOURTH SEMESTER [B.TECH] MAY-JUNE 2015

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.

- Q1 Answer the following: (5x5=25)
- (a) Write short note on true error, residual error and most probable error.
 - (b) Briefly explain tide and its characteristics.
 - (c) How do you determine the scale of an aerial photograph? What do you understand the term datum scale and average scale?
 - (d) Write short notes on sidereal time, standard time.
 - (e) Describe the procedure of setting out a building.
- Q2 (a) In a trigonometrical measurement of the difference in level of two stations P and Q, 10480 m apart, the following data were obtained.
- (i) Instrument at P, angle of elevation of Q = 0° 15'
 - (ii) Instrument at Q, angle of depression of P = 3° 33'
 - (iii) Height of instrument at P = 1.42 m.
 - (iv) Height of instrument at Q = 1.45 m.
 - (v) Height of signal at P = 3.95 m.
 - (vi) Height of signal at Q = 3.92 m.
- Find the difference in level between P and Q and the curvature and reflection correction. (8)
- (b) How you determine the most probable value? Explain with suitable example. (4.5)
- Q3 Explain the following with suitable examples:
- (a) Law of error (4)
 - (b) Law of weight (4)
 - (c) Method of least square (4.5)
- Q4 (a) Briefly explain the procedure of setting out of centre line of a dam. (6)
- (b) Briefly explain hydrographic surveying. (6.5)
- Q5 Explain the survey methods involved for Highway alignment, with suitable example. (12.5)
- Q6 (a) A vertical photograph was taken at an altitude of 1200 meters above the mean sea level. Determine the scale of photograph for terrain lying at elevation of 80 meters and 300 meters if the focal length of the camera is 15 cm. (6.5)
- (b) Explain parallax in aerial stereoscopic views with neat sketch. (6)
- Q7 (a) An object of elevation of 400 m above mean sea-level. The distance from the principal point to the image of that point on the photograph is 4.86 cm. If the datum scale is 1/12000 and focal length of the camera is 24 cm, determine the relief displacement of the point. (6)
- (b) The scale of an areal photograph is 1 cm = 100 m. The photograph size is 20 cm x 20 cm. Determine the number of photographs required to cover an area of 10 km x 10 km, if the longitudinal lap is 60% and side lap is 30%. (6.5)
- Q8 (a) What are 'Parallax' and 'refraction' and how do they affect the measurement of vertical angle in astronomical work? (8)
- (b) Find the LST at place in longitude 85° 20'E at 6h 30m P.M. GST at GMN being 6h 32m 12s. (4.5)

P

4.86 x 24
9000