

**END TERM EXAMINATION**

THIRD SEMESTER [B.TECH] DECEMBER 2017

**Paper Code: ETCE-209****Subject: Surveying****Time: 3 Hours****Maximum Marks: 75****Note: Attempt any five questions including Q.no. 1 which is compulsory.**

Q1 Attempt the following questions: (5x5=25)

- (a) What are the principles and methodologies used in tachometric survey?
- (b) What is the topographic map and its importance in surveying?
- (c) Describe the various methods of contouring. Also explain with neat sketches, the uses of contour maps.
- (d) Differentiate between methods of repetition and reiteration used in theodolite survey.
- (e) What are the major steps involved in planning of a survey?

Q2 (a) What is the significance of Laplace station in triangulation? Illuminate various method of measuring baselining. (8) (4.5)

- (b) Explain briefly and write short notes on DGPS.

Q3 The traverse data containing lengths and interior angles of a traverse are given below. The bearing of line PQ was observed and recorded as S  $36^{\circ} 12' 30''$  E. Check the traverse for angles and closing errors, if any. Find the correct latitudes and departure by transit method. (12.5)

Line	Length	Station	Included Angle
PQ	102.8	P	$131^{\circ} 14' 30''$
QR	98.4	Q	$84^{\circ} 19' 25''$
RS	110.8	R	$116^{\circ} 35' 25''$
ST	82.8	S	$119^{\circ} 58' 05''$
TP	113.29	T	$87^{\circ} 54' 0.5''$

Q4 (a) What is the principle of Plane Table surveying? Explain two-point and three-point problems by mechanical and graphical method. (8.5)

(b) What factors should be considered by the surveyor when setting the specifications for accuracy on a given project? (4)

Q5 What is 'closing error'? What are the different methods of balancing the closing error in a closed traverse? Explain any one method. (12.5)

Q6 (a) Write short note on: (i) Transition curve (ii) Vertical curves. (8)

(b) Convert following bearings from W.CB to R.B.  
(i)  $210^{\circ} 0'$  (ii)  $450^{\circ} 15'$  (iii)  $135^{\circ} 45'$  (4.5)

Q7 An offset is measured with an accuracy of 1 in 40. If the scale is plotting is 1 cm = 20, find the limiting length of the offset so that the displacement of the point on the paper from both sources of error may not exceed 0.25 mm. (12.5)

Q8 (a) Explain temporary adjustment of theodolite. (5)

(b) What are the usual principles of digitizing distance in a Total Station? Why is the reflector a corner cube prism? (7.5)

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