Enrollment No: _____ **Exam Seat No:**_____

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name : Surveying-I

Subject Code : 4TE03SUR1 **Branch :** B. Tech.(Civil)

Semester :3 **Date :** 08/12/2015 **Time :** 2:30 To 5:30 **Marks :** 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**

a) What is meant by sea level? 01

b) Define true bearing. 01

c) What is local attraction in compass? 01

d) Enlist the various accessories of a plane table survey. 01

e) Define geodetic surveying. 01

f) Define back sight. 01

g) In chain survey the area is divided into 01
(a) Rectangles (b) Triangles (c) Squares (d) Circles

h) The angle of intersection of the two plain mirrors of the optical square is 01
(a) 30° (b) 45° (c) 60° (d) 90°

i) In a surveyor's compass, the ring is graduated 01
(a) from 0° to 360° (b) from 0° to 180° (c) in quadrants 0° to 90° (d) in any way

j) The horizontal angle between the true meridian and the magnetic meridian is called 01
(a) Dip (b) Azimuth (c) Declination (d) None of above

k) The sum of exterior angles of a closed traverse is 01
(a) (2N – 4) x 90° (b) (2N + 4) x 90° (c) (N - 4) x 90° (d) (N + 4) x 90°

l) A Fixed point of reference, whose elevation is known, is called 01
(a) reduce level (b) change point (c) bench mark (d) station

m) The vertical distance between two adjacent contour lines is called 01
(a) Contour gradient (b) Vertical equivalent
(c) Contour interval (d) Horizontal equivalent

n) In measuring horizontal angles, the theodolite should be turned 01
(a) clockwise from the forward station to the back station
(b) clockwise from the back station to the forward station
(c) anticlockwise from the forward station to the back station
(d) anticlockwise from the back station to the forward station

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

(a) Discuss the classification of surveying based on instruments used and methods used. 05

(b) The length of a chain line when measured with a 20 m chain, was found to be 1341 m. But a 30 m chain, which had one link missing between 25 m and 30 m was used for the purpose, the line was found to be 1345m long. What was the error in 20m chain? 05

(c) Define the following terms with proper sketch. 04
(i) main station, (ii) tie station, (iii) base line, (iv) check line.

Q-3 **Attempt all questions** **(14)**

(a) What is surveying? Explain uses of surveying. 05

(b) Explain briefly the instruments used in chain surveying. 05

(c) Discuss different types of tape correction by giving its formulas. 04

Q-4 **Attempt all questions** **(14)**

(a) Explain characteristics of contour with the help of neat sketches. 05

(b) Explain the terms related to theodolite: 05
(i) transiting, (ii) diaphragm, (iii) face left observations, (iv) northing, (v) latitude.

(c) Differentiate between prismatic compass and surveyors compass. 04

Q-5 **Attempt all questions** **(14)**

(a) Explain step by step procedure to measure horizontal angle with repetition method. 07

(b) Explain with sketches, the resection method of locating a point by plane table survey. 07

Q-6 **Attempt all questions** **(14)**

(a) What is ranging? Enumerate various methods of ranging? Explain with neat sketch the procedure for indirect ranging? 07

(b) Calculate the interior angles and draw the traverse: 07

LINE	Fore bearings
AB	70^0 30’
BC	132^0 00’
CD	56^0 00’
DE	215^0 30’
EA	310^0 00’

Q-7 **Attempt all questions** **(14)**

(a) Following reading were taken on a continuously sloping ground with a dumpy level and a four meter staff: 0.560, 0.980, 1.250, 1.980, 2.350, 3.560, 0.780, 1.670, 2.750, 3.880, 0.900, 1.350, 2.100. Find RL of all the points and show necessary checks 07

(b) What is closing error in a compass traverse? How is it adjusted graphically? 07

Q-8 **Attempt all questions** **(14)**

(a) Explain principles and uses of tangent clinometers. 05

(b) Discuss the advantages and disadvantages of plane table surveying. 05

(c) Differentiate between: Bowditch’s rule and transit rule. 04