2. Explain the requirements of a transition curve. Derive the elements of a clothoid.

3. A curve of radius 300m has a deflection angle of 76^0, it has to be set with deflection angles from the backward tangent point, tabulate the angles and theodolite readings for locating points on the curve at 20m peg intervals. The chainage of the tangent point is 1008.65m.

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NCE 303

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 100313

Roll No.

B.Tech

(SEM III) ODD SEMESTER THEORY EXAMINATION 2014-2015

SURVEYING-I

TIME: 2 Hours *Total Marks:50*

Q1. Attempt any FOUR parts : 2.5x4=10

1. Describe the qualities of a good surveyor.
2. Give a classification of surveys and explain briefly the various types of surveys.
3. Explain the objective and basic principle of triangnbtion.
4. Define and explain the term declination. Enlist the causes of declination.
5. Briefly explain the method of traversing with a chain and compass.

6. Explain the steps involved in measuring a horizontal angle with a theodolite.

Q2. Attempt any TWO parts : 5x2=10

1. Explain the operational errors possible in leveling and the precautions that should be taken to prevent them..
2. The consecutive readings taken during a levelling operation are as follows; 0.685, 1.315,-1.825, 1.205, 1.235, 2.631, 1.355, -2.015. The instrument was shifted after the third and sixth readings. The third reading was taken to a benchmark of assumed elevation 100.000. Find the reduced levels of other points.
3. Explain briefly, with the help of neat sketches, the uses of contour maps.

Q3. Attempt any TWO parts : 5x2=10

1. Explain the indirect methods of contouring. Explain the advantages and disadvantages of these methods.
2. The bearings of the lines of a traverse are given below. Find the included angles and correct the bearings for local attraction, if any

PQ: 73° 40'	QP: 252° 30'
QR: 113° 50'	RQ: 295°20'
RS: 164°20'	SR: 344°20'

ST: 223° 40'	TS: 43° 00'
TP: 303° 50'	PT: 123° 45

3. The included angles of a traverse are given below; Find the deflection angles at each vertex

STATION	A	B	C
ANGLE	120° 30'40"	124° 10'40"	96° 05'20"

D	E
131° 00'40"	86° 09'40"

Q4. Attempt any TWO parts : 5x2=10

1. Explain the advantages and disadvantages of the different methods of plane table surveying.
2. Explain the three-point problem and the different methods of solving it.
3. The triangulation stations A & B are 90km apart. The elevation of A is 418.85m and that of B is 702.63m. An intervening peak is 66km from A and has an elevation of 524.6m. Check the intervisibility from A to B and also the required height of the signal at B for clear visibility. The line of sight must pass at least 2.5m above ground at all points.

Q5. Attempt any TWO parts : 5x2=10

1. Derive the expression for the elements of a compound curve.