Reg.No. | | | | | | | | | | |

B.E. (Full Time) DEGREE END SEMESTER EXAMINATIONS, MAY 2012

CIVIL ENGINEERING BRANCH

THIRD SEMESTER

CE 9203 – SURVEYING I

(REGULATIONS 2008)

Time: 3 Hours Maximum Marks: 100

INSTRUCTIONS:

1. Answer ALL questions under Part-A and B respectively
2. Assume suitable data wherever necessary
3. Draw neat sketches wherever desirable

PART - A (10 x 2 = 20 Marks)

1. Distinguish between Plane and Geodetic Surveying.
2. The length of AB measured with a 20 Metre chain was found to be 841.5 m. Calculate the true length of the line if (i) the chain was 10 cm long and (ii) the chain was 10 cm short.
3. The magnetic bearing of a line AB is S 38° 30' W. Calculate the true bearing if the magnetic declination is (i) 4° 30' W and (ii) 3° 30' E.
4. Mention the demerits of plane table surveying over the other methods of surveying.
5. Bring out the temporary adjustments of a Tilting level.
6. What considerations would you have while selecting the contour interval?
7. Write about the Micro-optic Theodolite.
8. Mention the rule in which the closing error is adjusted in Theodolite Traversing.
9. State the importance of setting out works.
10. What are the precautions to be undertaken in tunnel surveys

PART - B (5x16 = 80Marks)

11.a.i.The following bearings were observed in case of a closed traverse. At what stations, local attraction is suspected? Also compute the correct bearings.

LINE	Fore Bearing	Back Bearing
AB	S 40°30' W	N 41°15' E
BC	S 80°45' W	N 79°30' E
CD	N 19°30' E	S 20°00' W
DA	S 80°00' E	N 80°00' W

(8)

ii. What is three point problem? How is it solved by Bessel's method? (8)

P .T.O.

12.a.i. What is Surveying? Mention its basic principles. (6)

ii. Describe the different methods of ranging. (10)

(OR)

12.b.i. What is well conditioned triangle? Why is it required? (4)

ii. Bring out the step by step procedures involved in chain traversing while preparing the plan of a building. (12)

13.a. The following staff readings were observed successively with a level, the instrument was shifted after fifth and eleventh readings.
0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575, 3.375, 3.895, 1.735, 0.635 and 1.605metres
Enter the above readings in a page of a level field book and calculate the reduced levels of points by rise and fall method if the first reading was taken with a staff held on a Bench Mark of 136.440m. (16)

(OR)

13.b. In a proposed Hydro-electric project, a storage reservoir was required to provide a storage of 4.5million m^3 between the lowest drawdown(LDD) and the top water level(TWL).The area contained within the stated contours and upstream face of the dam were as follows.

Contour(m)	100	95	90	85	80	75	70	65
Area (ha)	30	25	23	17	15	13	7	2

If LDD was to be 68cm, calculate the TWL for
(i) Full storage capacity,
(ii) 60%full storage capacity.
(Use end area method for calculating volumes) (16)

14.a. To determine the elevation of the top of a flag post, the following observations were taken.

Instrument station	Reading on Bench Mark	Angle of elevation	Remarks
A	1.265m	10°48'	Reduced Level
B	1.085m	07°12'	of BM = 200.000m

Station A and B and the top of a flag post are in the same vertical plane.
Find the elevation of the top of a flag post if the distance between A and B is 50m.(16)

(OR)

14.b.i. Explain the Gale's traverse table used for computing the co-ordinates in theodolite traversing. (6)

ii. In a closed traverse ABCDE, the bearing of the line AB was measured as 150° 30'. The included angles were measured with Theodolite as under
LA = 130° 00' ; LB = 90° 00' ; LC = 125° 30' ; LD = 135° 30' : LE = 59° 00'
Calculate the bearing of all other lines and also check it. (10)

15. a. Tabulate the data needed to set out a circular curve of radius 500m to connect two straights having a deflection angle of 18° 24'. The chainage of intersection of tangents is 465m. Adopt peg interval of 20m. Use the method of deflection distances with offsets from chords produced. (16)

(OR)

15.b. Tabulate the data needed to set out a 5° left handed curve to connect two straights meeting with a deflection angle of 17° 30' at a point of chainage 1200m. Adopt peg interval of 15m. (16)