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

CIVIL ENGINEERING BRANCH

THIRD SEMESTER - (REGULATIONS 2004)

CE 273 – SURVEYING I

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. What is the aim of surveying?
2. What is well conditioned triangle? Why is it required?
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 adjustment of a Tilting level.
6. What considerations would you have while selecting the contour interval?
7. Distinguish between vernier and micro-optic theodolite.
8. Mention the various reasons for the closing error in theodolite traversing.
9. How will you designate the simple circular curve?
10. What are vertical curves? Mention its uses also.

PART - B (5x16 = 80Marks)

11. 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)

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. Explain the working of a line ranger. (4)
- ii. Bring out the step by step procedures involved in chain traversing while preparing the plan of a building. (12)

- 13.a.i. Explain the Bowditch rule for adjusting a compass traverse. (6)
- ii. 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

(10)

(OR)

- 13.b. What is three point problem? How is it solved by trial & Error and Bessel's method? (16)

- 14.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)

- 14.b. In a proposed Hydro-electric project, a storage reservoir was required to provide a storage of 4.5million m³ 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)

- 15. a.If you are an engineer incharge of waterways, bring out the step by step procedures involved in carrying out the project. (16)

(OR)

- 15.b 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)