Roll No.

CIVIL ENGINEERING BRANCH

THIRD SEMESTER (Regulation 2004/2008)

CE 273 / CE 9203 - SERVEYING I

Time : 3 Hours   Answer ALL Questions   Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. What are the instruments used for setting out right angles in chain survey?

2. The true length of a line is known to be 600m. The line was again measured with a 20m tape and found to be 602.4m. What is the correct length of the 20m tape?

3. Define the terms: i. magnetic declination ii. Local attraction.

4. What are the merit and demerit of Plane table Surveying?

5. Distinguish between Height of Instrument method and Rise and Fall method.

6. Find the error of reading of a leveling staff if the observed reading is 3.805m at a point sighted, the staff being 148mm off the vertical through the bottom

7. Distinguish between closed traverse and open traverse.

8. List different methods employed in balancing the traverse.

9. What is sight distance?

10. Differentiate compound and reverse curve.

Part – B (5 x 16 = 80 marks)

11. i. Describe the principles of Surveying.   (4)
    ii. Discuss different methods of chaining on slopping ground.   (4)
    iii. List the different tape corrections applied for measured length. Explain in detail. (8)

12. a) i. Following are the observed magnetic bearing of the traverse legs: (12)

Line	PQ	QR	RS	SP
FB	124°30'	68°15'	310°30'	200°15
BB	304°30'	246°00'	135°15'	17°45'

At what stations local attraction is suspected? Determine the corrected bearings of the traverse legs and also calculate the included angle.

    ii. Describe about two methods of orienting the plane table.   (4)

OR

    b) i. What is two-point problem? Describe the procedure in detail.   (12)
    ii. Describe Surveyor's Compass and Prismatic Compass.   (4)

13. a) i. The following consecutive readings were taken with a dumpy level and 5m (14) leveling staff on continuously sloping ground at a common interval of 15m. The first point is having an elevation of 185.275m. Rule out a page of level field book and enter the readings. Calculate (a) the reduced levels of the points by rise and fall method and (b) the gradient of the line joining the first and last point. 0.415, 1.025, 2.085, 2.925, 3.620, 4.595, 0.715, 2.115, 3.090, 4.405m.

ii. Why balancing the back sight and foresight required in fly leveling? (2)

OR

b) i. The following notes refer to reciprocal levels taken with on level: (12)

Inst.at	Staff readings on		Remark
	P	Q	
P	1.824	2.748	Distance between P and Q = 1010m
Q	0.928	1.606	RL of P = 126.386m

Find (a) True Reduced Level of Q. (b) The combined correction for curvature and refraction

ii. ii. Discuss Profile leveling and Cross section. (4)

14. a) i. A closed traverse was conducted round an obstacle and the following (16) observations were made. Compute the missing quantities.

Side	Length (m)	Azimuth
AB	500	98° 30'
BC	620	30° 20'
CD	468	298° 30'
DE	?	230° 00'
EA	?	150° 10'

OR

b) i. Explain temporary and permanent adjustment of theodolite. (16)

15. a) i. Explain the different methods of setting out simple curve by linear, angular (16) method and tacheometric method.

OR

b) i. Explain the major components of Route Surveying. (8)

ii. Discuss the steps involved in setting out of Tunnel alignment (8)