[01 – 2114]

II/IV B.E. DEGREE EXAMINATION.

First Semester

Civil Engineering

SURVEYING — I

(Common with Civil Environmental Engineering and M.S. Civil Engineering)

(Effective from the admitted batch of 2006–2007)

Time : Three hours   Maximum : 70 marks

Question 1 is compulsory and answer any
FOUR questions from the remaining.

1.   (a)   What is reciprocal ranging?

    (b)   What is location attraction? State its practical significance.

    (c)   List out the errors in plane Table Surveying.

    (d)   Under what circumstances is reciprocal levelling resorted to?

    (e)   Differentiate between back bearing and fore bearing.

    (f)   What is surveying? What are principles of surveying?

(g) What is planimeter?

(h) What are the permanent adjustments of a level?

(i) Distinguish between line of collimation and line of sight.

(j) What is use of Ceylon ghat tracer?

(k) The magnetic bearing of a line is 38°24'. What is true bearing if the magnetic declination is 5°38' east.

(l) Define contour interval and contour gradient.

(m) What are the different kinds of obstacle met in a chain survey?

(n) What do you understand by the term "orientation of plane table"?

2. (a) Describe any one method of overcoming an obstacle to both charming and ranging.

(b) In passing an obstacle in the form of a pond station P and Q on the main chain line, were taken on opposite sides of the pond. Point R and S to the left and right side of the chain line PQ are found to be at distance of 200 m and 250 m respectively from the point P of RQ and QS are 125 m and 150 m respectively find the length PQ.

2 [01 – 2114]

3. (a) Explain the difference between the surveyors compass and prismatic compass.

(b) Find which station is free from local attraction and work out correct bearing

Line	FB	BBAB
AB	191°45'	13°
BC	39°30'	222°30'
CD	22°15'	200°30'
DE	242°45'	60°45'
EA	330°15'	147°45'

4. (a) What are the access ories of plane tabling and their functions?

(b) Explain what is understood by orientation of a plane table and how the method of resection is useful for this purpose.

5. (a) Compare the collimation method with rise and fall method in reducing of levels.

(b) What is meant by reciprocal levelling? What are the errors eliminated in this levelling? The following notes refer to reciprocal levels.

Instrument	Staff reading on		Remarks
	P	Q	
P	1.850	2.850	PQ = 1055 M
Q	1.000	2.200	RL of P = 126.100

Determine :

(i) The true RL of Q

(ii) The combined correction for curvature and refraction and

(iii) The angular error, if any in the collimation adjustment of instrument.

3 [01 – 2114]

6. (a) It was required to as certain elevation of two points P and Q and a line of levels run from P and Q. The levelling was then continued to a bench mark of 83.500, the readings obtained being as shown below. Obtain the RL of P and Q

BS	IS	FS	RL	Remarks
1.6222				P
1.874		0.354		
2.032		1.780		
	2.362			Q
0.984		1.122		
1.906		2.824		
		2.036	83.500	B.M

(b) Explain in details different methods of interpolation of contours.

7. (a) Explain the principle, working and construction of optical source.

(b) What are the characteristics features of contours? Explain the help of neat sketches.

8. Write short notes on :

(a) Clinometer

(b) Gale's Travers table

(c) Errors in levelling.

4   [01 – 2114]