ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : NOV / DEC 2010

REGULATIONS : 2008

THIRD SEMESTER : CIVIL ENGG.

080100012 - SURVEYING I

TIME : 3 Hours Max.Marks : 100

PART - A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. What are the basic principles of Surveying?
2. Mention the classification of surveying based on instruments used.
3. What are the different types of chains commonly used in surveying?
4. What is a well-conditioned triangle?
5. Define closed traverse by means of a sketch.
6. Differentiate between fore bearing and back bearing
7. Define local attraction.
8. Define the term Orientation used in Plane table surveying.
9. What is a Bench Mark?
10. Define Reduced Level.
11. What is Longitudinal sectioning?
12. Define Contour Interval.
13. Mention the classification of theodolite traverse.
14. What are the various types of theodolites available?
15. Name the temporary adjustments.
16. What is parallax?
17. Name the different types of circular curves.
18. Sketch a reverse curve.
19. What is Reconnaissance Survey?
20. Define Point of tangency.

PART - B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. What is meant by ranging a line? Explain the procedure of ranging a line by direct method.

22. The following bearings were observed in a closed compass traverse ABCDA

Line	FB	BB
AB	114° 30′	294°30′
BC	70°00′	252°00′
CD	316°30′	133°00′
DA	195°00′	16°30′

Identify the stations affected by local attraction and determine the correct bearings.

23. Describe briefly the radiation method of plane table surveying.

24. (a) A level was set up at a point C at a distance of 350 m from A and 750 m from B. The staff reading on the staff held at A was 1.650 and that on the staff held at B was 2.865. Find the true differences in elevations of A and B. Also find the R.L. of B if the R.L. of A was +105.000 (4)

24. (b) Reciprocal leveling across a river gave the following results between the points A and B:

Instrument Position	Staff Position	Staff Reading (m)
X	A	1.560
X	B	2.380
Y	A	2.240
Y	B	3.100

Determine the R.L. of B if that of A is 5.790 m. (8)

25. (a) The areas within the contour line at the side of a reservoir and the face of the proposed dam are as follows: (8)

Contour	Area in m^2
101	1,000
102	12,800
103	95,200
104	147,600
105	872,500
106	1350,000
107	1985,000
108	2286,000
109	2512,000

Taking 101 as the bottom level and 109 as the top level of the reservoir, Calculate the capacity of the reservoir by Prismoidal formula.

b) Explain the characteristics of contour with sketches. (4)

26. The following table gives the lengths and bearings of the lines of a traverse ABCDE, the length and bearing of EA having been omitted. Calculate the length and bearing of the line EA.

Line	Length (metres)	Bearings
AB	204.00	87°30′
BC	226.00	20°20′
CD	187.00	280°00′
DE	192.00	210°30′
EA	?	?

27. (a) The following are the observed readings in a theodolite traverse ABCDEF. Detect the angular error and state whether it is permitted. (6)

Station	Deflection angles
A	101°30′ L
B	8°26′ R
C	86°46′L
D	107°40′ L
E	14°20′ R
F	86°40′L

(b) Mention different types of permanent adjustments of a theodolite and their objects. (6)

28. Two straights of a road deflect at an angle of 60°. They are to be connected by a circular curve of 200 m radius. The chainage at the point of intersection is 4582m. Find length of tangents , degree of curve, length of long chord, length of curve, mid – ordinate, apex distance , chainage at tangent points.

*****THE END*****