

II B.Tech I Semester Supplementary Examinations, November 2006
SURVEYING-I
(Civil Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Distinguish between baseline, tie line and checkline in chain survey. [3]
(b) How will you overcome the obstacles in chain surveying which obstruct
 - i. Chaining.
 - ii. Ranging and
 - iii. Both chaining and ranging. [10](c) Give the conventional signs for the following
 - i. Bridge
 - ii. Embankment
 - iii. Temple [3]
2. (a) What do you understand by the term well-conditioned triangle? Why is it necessary to have such triangles in a chain survey? [6]
(b) What is an offset? what are different types of offsets? Explain the swing offsets. [7]
(c) Give the conventional signs for the following
 - i. Lake
 - ii. Culvert
 - iii. Church [3]
3. (a) Distinguish between:
 - i. True meridian and magnetic meridian
 - ii. Isogonic lines and Agonic lines [6](b) The following angles were observed in antilockwise direction in an open traverse.
 $\angle ABC = 124^{\circ}15'$
 $\angle BCD = 154^{\circ}30'$
 $\angle CDE = 98^{\circ}30'$
If the magnetic bearing of the line AB is $238^{\circ}30'$, calculate the bearing of the line DE. [10]
4. (a) What is meant by closing error of a compass traverse? [3]
(b) The following observations are related to a closed compass traverse ABCD. Find out the stations which suffer local attraction and give the values of the corrected bearings.

| Line | F.B. | B.B. |
|------|------------------|------------------|
| AB | $74^{\circ}20'$ | $256^{\circ}00'$ |
| BC | $107^{\circ}20'$ | $286^{\circ}20'$ |
| CD | $224^{\circ}50'$ | $44^{\circ}50'$ |
| DE | $306^{\circ}40'$ | $126^{\circ}00'$ |

[13]

5. Describe the various methods of plane tabling. Under what condition is each preferred? [16]
6. (a) Explain the various approximate methods for the computation of area of a plan. [8]
- (b) The following offsets were taken from a chain line to an irregular boundary.
- | | | | | | | | | | |
|--------------|-----|-----|------|-----|-----|-----|------|------|-----|
| Distance (m) | 0 | 20 | 40 | 60 | 80 | 120 | 160 | 200 | 240 |
| Offsets (m) | 8.2 | 9.5 | 10.4 | 9.7 | 8.6 | 7.9 | 11.2 | 12.5 | 6.7 |
- Compute the area included between the chain line, the boundary and the end offsets by Simpson's Rule. [8]
7. A straight road is to be formed along hill side having a uniform lateral slope of 12 horizontal to 1 vertical. The formation width is 20m with side slopes 1:1 in cutting and 2:1 in filling. Calculate the total volume of earthwork in a length of 400m if the areas of cut and fill in each cross-section are equal. [16]
8. With a neat sketch, describe the construction and use of the Pentagraph. [16]
