# II B.Tech I Semester Examinations,November 2010 SURVEYING Civil Engineering 

Time: 3 hours
Max Marks: 80

## Answer any FIVE Questions <br> All Questions carry equal marks

1. Draw a neat sketch of a vernier theodolite and explain the functions of the various parts?
2. (a) What are the common difficulties in setting out simple curves? Describe briefly the method employed in overcoming them?
(b) Define the following terms:
i. Point of Curvature
ii. Point of Tangency
iii. Mid-ordinate
iv. Point of compound curvature.
3. (a) What is mass diagram? How it is constructed and what are its uses?
(b) Calculate the side wietth and area of the cross-section of an embarkment with the following Specifications:
Formation width $=20 \mathrm{~m}$
Side slope $\quad=2$ to 1
Centre- height $=12 \mathrm{~m}$
Transyerse slope $=10$ to 1 .
4. (a) A level was set up at a point C at a distance of 100 m from A and 1000 m from B. The staff reading on the staff kept at A was 0.445 m and that on the staff held at B was 2.845 . Find the true difference in elevations of A and B .
(b) The staff reading taken on a staff held at a distance of 80 m from the instrument with the bubble central was 1.455 m . When the bubble is moved 6 divisions out of the centre, the staff reading observed is 1.487 m . If the length of one division is 2 mm , find the radius of the curvature and the sensitivity of the tube.
[8+8]
5. (a) Write short note on random line method.
(b) A main line of a survey crosses a river about 25 m wide. To find the gap in the line, stations A and B are established on the opposite banks of the river and a perpendicular $\mathrm{AC}, 60 \mathrm{~m}$ long is set out at A . If the bearings of AC and and CB are $30^{\circ}$ and $270^{\circ}$ respectively, and the chainage at A is 285.1 m , find the chainage at B .
6. Describe in brief the working and salient features of a Wild Tachymat electronic total station?
7. (a) What considerations would you have while selecting survey stations and survey lines in a chain survey?
(b) Write a short note on the marking of survey stations and referencing. [8+8]
8. (a) Discuss the subtense bar method of tacheometric surveying. What are its advantages?
(b) Following readings were taken by a tacheometer from a station. The staff was kept vertical. The value of constant of tacheometer is 100 and is fitted with anallatic lens. Find out the horizontal distance from A to B and the reduced level of B:

| Station | Staff Station | Vertical angle | Hair reading | Remarks |
| :---: | :---: | :---: | :---: | :---: |
| A | B.M | $-6^{0} 00^{\prime}$ | $1.100,1.153,2.060$ | R.L of |
|  | B | $+8^{0} 00^{\prime}$ | $0.982,1.085,1.188$ | B.M $=976.0 \mathrm{~m}$ |
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[16]

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