

Code No: 07A30103

R07**Set No. 2**

II B.Tech I Semester Examinations, MAY 2011

SURVEYING**Civil Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are 'face left' and 'face right' observations? Why is it necessary to take both face observations?
 (b) Why both verniers are read in theodolite? [10+6]

2. (a) What is mass diagram? How it is constructed and what are its uses?
 (b) Calculate the side width and area of the cross-section of an embankment with the following Specifications:

Formation width	=	20m	
Side slope	=	2 to 1	
Centre- height	=	12m	
Transverse slope	=	10 to 1.	[6+10]

3. Two straights AB and BC intersect at an inaccessible point B. Chainage of point M on the straight AB is 5865m from where the following theodolite traverse was run to another point N on the forward straight BC:

Side	Length	Included Angle
Ma	114.02 m	$\angle BMa = 18^{\circ}26'06''$
ab	131.02m	$\angle Mab = 204^{\circ}00'04''$
bc	94.34m	$\angle abc = 139^{\circ}14'55''$
cd	80.62m	$\angle bcd = 219^{\circ}07'49''$
dN	50.00m	$\angle cdN = 119^{\circ}44'42''$
NB	?	$\angle dNB = 73^{\circ}21'18''$

Calculate the necessary data for setting out a simple circular curve of radius 700m?
 [16]

4. The following observations were made during the testing of a dumpy level.

Instrument at	staff readings on	
	A	B
A	2.40	1.30
B	2.30	1.40

Is the instrument in adjustment? If not, determine the error. If R.L. of A is 200.00, determine the R.L. of B.
 [16]

5. Give a brief account of the origin of Global Positioning System? [16]
 6. (a) A plane table survey is to be carried out at a scale of 1 : 5000. Show that at this scale, accurate centering of the plane table over the survey station is not

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necessary. What error would be caused in position on a map if the point is 45 cm out of the vertical through the station?

- (b) Define three-point problem and show how it may be solved by tracing paper method. [6+10]

7. A river is flowing from west to east. For determining the width of the river, two points A and B are selected on the southern bank such that the distance AB=75 m. and point A is westward. The bearings of a tree C on the northern bank are observed to be 38° and 338° respectively from A and B. Calculate the width of the river.

[16]

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: [16]

Station	Staff Station	Vertical angle	Hair reading	Remarks
A	B.M	$-6^\circ 00'$	1.100, 1.153, 2.060	R.L of B.M = 976.0m
	B	$+8^\circ 00'$	0.982, 1.085, 1.188	

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R07**Set No. 4**

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Instrument at	staff readings on	
	A	B
A	2.40	1.30
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Is the instrument in adjustment? If not, determine the error. If R.L. of A is 200.00, determine the R.L. of B. [16]

2. A river is flowing from west to east. For determining the width of the river, two points A and B are selected on the southern bank such that the distance AB=75 m. and point A is westward. The bearings of a tree C on the northern bank are observed to be 38° and 338° respectively from A and B. Calculate the width of the river. [16]

3. Two straights AB and BC intersect at an inaccessible point B. Chainage of point M on the straight AB is 5865m from where the following theodolite traverse was run to another point N on the forward straight BC:

Side	Length	Included Angle
Ma	114.02 m	$\angle BMa = 18^\circ 26' 06''$
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bc	94.34m	$\angle abc = 139^\circ 14' 55''$
cd	80.62m	$\angle bcd = 219^\circ 07' 49''$
dN	50.00m	$\angle cdN = 119^\circ 44' 42''$
NB	?	$\angle dNB = 73^\circ 21' 18''$

Calculate the necessary data for setting out a simple circular curve of radius 700m? [16]

4. (a) What are 'face left' and 'face right' observations? Why is it necessary to take both face observations?

(b) Why both verniers are read in theodolite? [10+6]

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6. (a) What is mass diagram? How it is constructed and what are its uses?

(b) Calculate the side width and area of the cross-section of an embankment with the following Specifications:

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Formation width	=	20m	
Side slope	=	2to 1	
Centre- height	=	12m	
Transverse slope	=	10 to 1.	[6+10]

7. (a) A plane table survey is to be carried out at a scale of 1 : 5000. Show that at this scale, accurate centering of the plane table over the survey station is not necessary. What error would be caused in position on a map if the point is 45 cm out of the vertical through the station?
- (b) Define three-point problem and show how it may be solved by tracing paper method. [6+10]
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: [16]

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R07**Set No. 1**

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- (b) Calculate the side width and area of the cross-section of an embankment with the following Specifications:
- | | | |
|------------------|---|----------|
| Formation width | = | 20m |
| Side slope | = | 2 to 1 |
| Centre- height | = | 12m |
| Transverse slope | = | 10 to 1. |
- [6+10]

5. Two straights AB and BC intersect at an inaccessible point B. Chainage of point M on the straight AB is 5865m from where the following theodolite traverse was run to another point N on the forward straight BC:

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8. A river is flowing from west to east. For determining the width of the river, two points A and B are selected on the southern bank such that the distance AB=75 m. and point A is westward. The bearings of a tree C on the northern bank are observed to be 38^0 and 338^0 respectively from A and B. Calculate the width of the river.

[16]

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R07**Set No. 3**

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