Code No: R21015/R10 **Set No. 1**

II B.Tech I Semester Supplementary Examinations, September 2014
SURVEYING
(Comm.to CE,PE)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Describe plane Table Radiation method with the help of a neat sketch. Under what circumstances this method is resorted to.
   (b) Discuss the advantages and disadvantages of plane table Surveying over other methods of Surveying.
2. (a) What are the essential differences between chain Survey and compass Survey. Under what circumstances compass Survey is preferred to other types of Surveys.
   (b) Find which station is free from local attraction and work out the correct bearings.

Line	F.B	B.B
AB	$191^o45'$	$13^o00'00''$
BC	$39^o30'$	$222^000'30''$
CD	$22^o15'$	$200^030'00''$
DE	$242^o45'$	$60^045'00''$
EA	$330^o15'$	$147^045'00''$

3. Explain the following with the help of neat sketches:
   (a) Vertical line
   (b) Datum
   (c) Elevation
   (d) Vertical angle
4. The length of the tracing area between the tracing point and the hinge is 16.6cm. The distance of the anchor point from the hinge is 22.6 cm. The dia. of the rim of the wheel is 1.92 cm, the wheel being placed between the hinge and the tracing point. The distance of the wheel from the hinge is 1.68 cm find the area of one recordation of the measuring wheel and the area of the zero circle.
5. What are the different errors in Theodolite work? How are they eliminated?
6. (a) What are the advantages of keeping the staff vertical?
   (b) How would you, determine the constants K and C of a Tacheometer.
   (c) What are the advantages of tacheometric surveying over other methods?
7. (a) What are the elements of a simple circular curve. Give their relationships.

(b) Two roads meet an angle of $127^0 30'$. Calculate the necessary data for setting out a curve of 15 chains radius to connect two straight portions of the road if it is intended to set out the curve by chain and offsets only. Take length of chain as 30m

8. Explain about the segments of Global Positioning system?

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Code No: R21015/R10 **Set No. 2**

II B.Tech I Semester Supplementary Examinations, September 2014
SURVEYING
(Comm.to CE,PE)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) a) Explain clearly the points of difference between the prismatic compass and Surveyor's compass.
   (b) What are the sources of errors in compass Surveying and what precautions are to be taken to eliminate them.

2. (a) Explain the terms : Check Line, Base Line, Tie Line, and oblique offset.
   (b) Find the maximum length of offset so that the displacement on paper from both sources of error does not exceed 0.2 mm given that the offset is measured with an accuracy of 1 in 25 and the scale is 1cm = 50m.

3. What is the difference between contour interval and contour gradient? Explain the method of locating contour gradient.

4. The areas enclosed by various contours on the upstream side of a dam are given below. Determination.
   (a) the capacity of the reservoir if the full reservoir level (FRL) is 125m.
   (b) the elevation of the water surface when the reservoir is half-full. Ignore the volume below R.L. 100m.

Contour(m)	100	105	110	115	120	125
Area(ha)	3	8	10	15	20	25

5. What is Gale's traverse table? Discuss the procedure for recording the various entries in the table.

6. A tacheometer, fitted with an anallactic lens and having the multiplying constant 100 was set up at R which is an intermediate point on a traverse course AB. The following readings were taken with staff held vertically.

Staff station	Bearing	Vertical angle	Intercept	Axial hair reading
A	$40^0 35'$	$-4^0 24$	2.21	1.99
B	$22^0 35'$	$-5^0 12'$	2.02	1.90

   Calculate the length of AB and the level difference between A and B.

7. (a) What are the elements of a simple circular curve. Give their relationships.
   (b) Two roads meet an angle of $127^0 30'$. Calculate the necessary data for setting out a curve of 15 chains radius to connect two straight portions of the road if it is intended to set out the curve by chain and offsets only. Take length of chain as 30m

8. (a) What are the similarities and differences between mapping and GIS?
   (b) What is the role of Data Base Management in Geographical information System?
   (c) Differentiate Thematic Map and Topographical Map.

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Code No: R21015/R10 **Set No. 3**

II B.Tech I Semester Supplementary Examinations, September 2014
SURVEYING
(Comm.to CE,PE)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is local attraction. How is it detected and removed.
   (b) What do you understand by closing error of a compass traverse. Show how can it be adjusted by graphical method.

2. (a) Explain the terms : Check Line, Base Line, Tie Line, and oblique offset.
   (b) Find the maximum length of offset so that the displacement on paper from both sources of error does not exceed 0.2 mm given that the offset is measured with an accuracy of 1 in 25 and the scale is 1cm = 50m.

3. (a) What is the difference between the "temporary" and "permanent adjustments" of a level?
   (b) Name the temporary and permanent adjustments of a level. State the desired relations.

4. Calculate the area of a figure from the following readings recorded by the planimeter with the anchor point outside the figure
   Initial reading = 9.918
   Final reading = 4.254
   Multiplying constant M = 100sq.cm
   Constant of the instrument: C = 23.521
   It was observed that the zero mark on the dial passed the index once in the anti-clock wise direction.

5. The following lengths and bearings were recorded in running a Theodolite traverse. Determine the omitted observations, the length & bearing of SP.

Line	Length (m)	WCB
PQ	255	$14^0\ 042'$
QR	656	$35^0\ 00'$
RS	120	$338^0\ 42'$
SP	–	–

6. (a) How would you locate details in a tacheometric traverse?
   (b) Explain the use of a tacheometer in contour surveying

7. (a) Why are the curves provided. Explain different types of curves with neat sketches.

(b) Two straights intersect at a chainage of 3500.5m with an angle of intersection of 156^0. These two straights are to be connected by a simple circular curve of 200m radius. Calculate the data necessary by the method of offsets from the chords produced with a peg interval of 20m. Explain the procedure to set out the curve.

8. (a) What is Geodetic Surveying? How it is different from Plane surveying.

(b) Explain the importance of electronic surveying in the field of surveying.

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Code No: R21015/R10 **Set No. 4**

II B.Tech I Semester Supplementary Examinations, September 2014
SURVEYING
(Comm.to CE,PE)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Define Surveying. Explain its importance for civil Engineers.
   (b) What is meant by Reconnaissance Survey.
   (c) A Chain was tested before starting a survey and was found to be exactly 30m. At the end of the Survey, it was tested again and found to measure 30.10m. The area of the plan of the field drawn to a sale of 1cm = 20m was 160 square centimeters. Find the true area of the field in square metres.

2. (a) Explain the terms : Check Line, Base Line, Tie Line, and oblique offset.
   (b) Find the maximum length of offset so that the displacement on paper from both sources of error does not exceed 0.2 mm given that the offset is measured with an accuracy of 1 in 25 and the scale is 1cm = 50m.

3. A level set up on extended line BA in a position 70m from A and 100m from B reads 1.684 m on a staff held at A and 2.122 on a staff held at B, the bubble having been carefully brought to the center of its run before each reading. The R.Ls of the tops of pegs A and B are 89.620 and 89.222m respectively. Find
   (a) the collimation error, and
   (b) the readings that would have been obtained had there been no collimation error.

4. (a) Name the three methods of measuring volume. For what purpose each one of these is use?
   (b) Explain the measurement of volume from cross sections.

5. (a) State what errors are eliminated by repetition method. How will you set out a horizontal angle by method of repetition?
   (b) Discuss the procedure of measuring horizontal angle with a theodolite?

6. To determine the distance between two stations A and B, a tacheometer was set up at a point P on the line AB and the following observations were made:
   (a) When the staff was held at A
   Staff readings = 2.225, 2.605, 2.985
   Vertical angle = $+8^0 24'$

(b) When the staff was held at B
Staff readings = 1.640, 1.920, 2.200
Vertical angle = $-1^0 06'$
Also determine the R.L. of B if the R.L. of A is 315.673 m (k=100.00 and c=0.00)

7. (a) What is a compound curve. If in a compound curve, the direction of the two straights and one radius are known, deduce the formula for other radius.

   (b) Tabulate the necessary data to set out a right handed simple circular curve of 600m radius to connect two straights intersecting at a chainage of 3605m by Rankine's method of deflection angles. The angle of deflection of the curve is 25^0 and the peg interval is 30m.

8. (a) What is Geodetic Surveying? How it is different from Plane surveying.

   (b) Explain the importance of electronic surveying in the field of surveying.

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