Code No: R1621015 **R16** SET - 1

II B. Tech I Semester Regular/Supplementary Examinations, October/November - 2019
SURVEYING
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

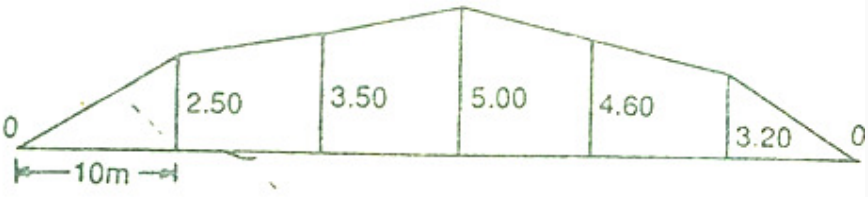
1.	a)	Define Surveying. What are the fundamental principles of surveying?	(3M)
	b)	What is Magnetic Declination?	(2M)
	c)	Distinguish between Line of Collimation and Line of Sight.	(3M)
	d)	List out the major parts of Theodolite.	(2M)
	e)	Differentiate between simple and compound curve.	(2M)
	f)	How areas are computed along irregular bodies.	(2M)

PART -B

2.	a)	What are different tape corrections?	(7M)
	b)	Explain the working and use of the following: a. Open cross staff (i) French cross-staff (ii) Optical square (iii) Prism square	(7M)
3.	a)	Differentiate between Prismatic compass and Surveyor's compass with reference to reading and tripod.	(7M)
	b)	Convert the whole circle bearing into reduced bearing: 50^0, 176^0 , 210^0 , 232^0 , 150^0, 76^0 , 310^0 ,242^0	(7M)
4.		What are the different sources of errors in leveling? How are they eliminated?	(14M)
5.		Name the two methods of measuring horizontal angles using a theodolite. Discuss any method in detail.	(14M)
6.	a)	State the relationship between the radius of a curve and the degree of the curve.	(7M)
	b)	Two straights intersect at a deflection angle of 80 and are connected by a circular curve of radius to chains. Find the length of each and tangent, the curve, and the long chord, the apex distance, the mid ordinate of the curve and the degree of the curve.	(7M)

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7. The following offsets were taken from a chain line to an irregular boundary line at an interval of 10 m (FIGURE) (14M)
0, 2.50, 3.50, 5.00, 4.60, 3.20, 0 m
Compute the area between the chain line, the irregular boundary line and the end of offsets by:
a) mid ordinate rule
b) the average –ordinate rule
c) the trapezoidal rule
d) Simpson's rule



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Code No: R1621015 **R16** SET - 2

II B. Tech I Semester Regular/Supplementary Examinations, October/November - 2019
SURVEYING
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1.	a)	What are the objectives of surveying?	(3M)
	b)	What is Magnetic Meridian?	(2M)
	c)	Distinguish between Level Line and Horizontal Line.	(3M)
	d)	How do you eliminate parallax in Theodolite?	(2M)
	e)	What is a Total station?	(2M)
	f)	What is Simpson's rule?	(2M)

PART -B

2.	a)	What are the possible errors in chaining?	(7M)
	b)	What is well conditioned triangle? Why is it necessary to use well-conditioned triangle?	(7M)
3.	a)	Define and distinguish between magnetic dip and magnetic declination.	(7M)
	b)	The bearings of the lines of a closed traverse are 290º 30‟; 50º 30; 196º 0; 175º30‟; 112º 0‟; 30º 0‟; Determine the included angles and the angular error.	(7M)
4.		The following consecutive readings were taken with a level and 5 meter leveling staff an continuously sloping ground on a common interval of 20 meters. 0.385 ; 1.030 ; 1.925 ; 2.825 ; 3.730 ; 4.685 ; 0.625 ; 2.005 ; 3.1101 ; 4.485 the R.L of the first point was 208.125 m. Rule out a page of level book and enter the readings. Calculate the R.L.‟S of the points by rise and fall method .	(14M)
5.	a)	What is closed traverse? What are the two checks applicable in this case?	(7M)
	b)	What are face left and face right observations? Why is it necessary to take both these observations?	(7M)
6.		With a neat sketch show the different parts of a simple circular curve.	(14M)
7.		Derive the formulae Trapezoidal and Simpson's rules.	(14M)

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Code No: R1621015 **R16** SET - 3

II B. Tech I Semester Regular/Supplementary Examinations, October/November - 2019
SURVEYING
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1.	a)	What are the principles of surveying?	(2M)
	b)	Distinguish between angle and bearing.	(3M)
	c)	What is Dumpy level?	(2M)
	d)	What do you mean by temporary adjustments of a theodolite?	(2M)
	e)	What is GPS?	(2M)
	f)	What are the operations involved in setting out a tunnel?	(2M)

PART -B

2.	a)	Distinguish between a check line and a tie line.	(7M)
	b)	Explain the different operations involved in working with plane table	(7M)
3.	a)	The magnetic bearing of a line is S 280 30’ E. Calculate the true bearing if the magnetic declinations are 50 38’ East and 50 38’ West.	(7M)
	b)	Explain the Bow ditch rule for adjusting a compass traverse	(7M)
4.	a)	What are the different Characteristics of contour?	(7M)
	b)	How do you calculate the capacity of the reservoir from the contour map?	(7M)
5.	a)	Define Trigonometrical leveling or Heights and Distances.	(7M)
	b)	State the advantages of Tachometric surveying	(7M)
6.	a)	Write about the various elements of a simple circular curve.	(7M)
	b)	Explain the method of setting out a simple curve by two theodolites	(7M)
7.		The following offsets were taken at 15 m intervals from a survey line to an irregular boundary line 3.50,4.30, 6.75, 5.25, 7.50, 8.80, 7.90, 6.40, 4.40, 3.25 m Calculate the area enclosed between the survey line, the irregular boundary line, and the offsets, by: a) Trapezoidal rule b) Simpson’s rule	(14M)

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Code No: R1621015 **R16** SET - 4

II B. Tech I Semester Regular/Supplementary Examinations, October/November - 2019
SURVEYING
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1. a) What are the errors in survey measurements? (3M)
   b) Define the term Dip. (2M)
   c) Define Fore sight and Back sight. (2M)
   d) What do you mean by collimation adjustment? (3M)
   e) What is GIS? (2M)
   f) Discuss about onbankment and cutting (2M)

PART -B

2. Explain clearly the two point problem and the method of solving it. (14M)

3. a) Distinguish between closed traverse and open traverse. (4M)
   b) The bearing of a line AB was found to be N 79º E. There was local attraction at A. In order to determine the correct bearing of the line, a point O was selected at which there was no local attraction. The bearing of the line AO was S 53º 45‟E and that of OA was N 57º 30‟W. Determine the correct bearing of the line AB. (10M)

4. a) Define Contour, contour interval and, horizontal equivalent. (7M)
   b) What are the permanent adjustments of a leveling instrument? (7M)

5. What are the various permanent adjustments of Theodolite? Explain in detail. (14M)

6. A Simple circular curve is to have a radius of 573m. The tangents intersect at chain age 1060 m and the angle of intersection is 120: Find (14M)
   i) Tangent distance
   ii) Chain age at beginning and end
   iii) Length of long chord
   iv) Degree of curve
   v) Number of full and sub-chords.

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7. An embankment of width 10 m and side slopes 1 ½:1 is required to be made on a ground which is level in a direction transverse to the centre line. The central heights at 40 m intervals are as follows: (14M)
0.90,1.25,2.15,2.50,1.85,1.35, and 0.85
Calculate the volume of earth work according to
i) Trapezoidal formula
ii) Prismoidal formula

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