Code No: R2021014 **R20** SET - 1

II B. Tech I Semester Regular Examinations, Feb/March - 2022
SURVEYING AND GEOMETRICS
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions each Question from each unit
All Questions Carry **Equal** Marks
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1	a)	Define surveying and explain the principles of surveying.	[7M]
	b)	List different methods of making linear measurements?Explain the principle on which chain survey is based.	[7M]
		Or	
2	a)	Following is the data regarding a closed compass traverse PQRS taken in a clockwisedirection Fore bearing and back bearing at station P= 55^0 and 135^0, respectively • Fore bearing and back bearing of line RS = 211^0 and 31^0, respectively • Included angles 6 Q = $10^0$6 R = 105^0 • Local attraction at station R=20W • All the observations were free from all the errors except local attraction. From the above data: (i) Calculate the local attraction at stations P and S. (ii) Calculate all the lines' corrected bearings and tabulate the same.	[7M]
	b)	List advantages of the total station over other instruments for surveying.	[7M]
3	a)	A dumpy level was setup at L1 exactly midway between A and B, 50m apart. Thereadings on the staff when held on A and B were, respectively, 1.40m and 2.40m.The instrument was then shifted and set up at point L2 on the line BA producedand 10m from A. The readings on the staff held at A and B were, respectively, 1.50and 2.60. Determine the correct readings and the R.L. of B if that of A is 200.00.	[7M]
	b)	How do you perform the check on the accuracy of a closed traverse? Explain	[7M]
		Or	
4	a)	What are the different types of diaphragms? Explain the importance of a diaphragm in a leveling instrument.	[7M]
	b)	Explain the working of a dumpy level with a sketch. What are the various temporary adjustments?	[7M]
5	a)	Recall the instrumental errors in a theodolite? How would you minimizethem?	[7M]
	b)	What is a compound curve? Discuss the importance, and uses of contours in civil engineering projects.	[7M]
		Or	
6	a)	State what errors are eliminated by the repetition method? How will you set outa horizontal angle by the method of repetition?	[7M]
	b)	Define the three-point problem and show how it may be solved by the tracing papermethod.	[7M]
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7 a) A tacheometer was setup at station A, and the readings on a vertically heldstaff at B were 2.255, 2.605 and 2.955, the line of sight being at an inclination of $+80^{0}24^{1}$. Another observation on the vertically held staff at B.M gave the readings 1.640, 1.920 and 2.200, the inclination of the line of sight being +106'. Calculate the horizontal distance between A and B and the elevation of B if the R.L of B.M is 418.685m. The constants of the instruments were 100 and0.3. [7M]

b) List different types of Theodolites and their principles. [7M]

Or

8 Describe in brief the working and salient features of a Wild Tachymat electronictotal station? [14M]

9 What is Photogrammetrey? Explain its merits and demerits when compared with other? [14M]

Or

10 Explain the following: [14M]

a) Terrestrial photogrammetry,
b) Aerial triangulation and
c) Mapping using stereo plotting instruments
d) Radial triangulation