Code No: 182AU **R22**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech I Year II Semester Examinations, January/February - 2024
SURVEYING
(Civil Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: This question paper contains two parts A and B.
i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.
- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A

(10 Marks)

1.a) Define Surveying. [1]
b) What are the different types of compasses used in surveying? [1]
c) What are the various checks in Rise and Fall method? [1]
d) Define the term contour interval. [1]
e) What is face Right observation of a theodolite? [1]
f) What are omitted measurements in surveying? [1]
g) What is tangent length? [1]
h) What is the difference between a theodolite and tacheometer? [1]
i) What are the advantages of GPS? [1]
j) What is the range of total station in field? [1]

PART - B

(50 Marks)

2. At what stations do you suspect local attraction? Find the correct bearings of lines and compute the included angles. [10]

LINE	FORE BEARING	BACKBEARING
AB	66°20'	246°20'
BC	139°30'	318° 50'
CD	189°40'	11°20'
DA	300°30'	119° 30'

OR

3. What are the different tape correction and how they are applied? [10]

4. The following perpendicular offsets were taken at 10m intervals from a survey line to an irregular boundary line 3.25,5.60,4.20,6.65,8.75,6.20,3.25,4.20,5.65 calculate the area enclosed between the survey line , the irregular boundary line and the first and last offsets, by the application of a) Trapezoidal rule and b) Simpson's rule. [10]

OR

5. What are the indirect methods of locating a contour? Write about any two methods.[10]

6. For the following traverse, compute the length CD, so that A, D and E may be in one straight line. [10]

Line	Length(m)	Bearing
AB	110°	83°12′
BC	165°	30°42′
CD	?	346°06′
DE	212°	16°18′

OR

7.a) What are the different errors in theodolite work? How are they eliminated?

b) Derive the equation for heights and distances using trigonometric leveling when base of the object is accessible. [5+5]

8. Discuss in brief about the elements of simple circular curve with figure and give their relationship. [10]

OR

9. The following readings were taken by a tacheometer with the staff held vertical. The tacheometer is fitted with analytic lens and the multiplying constant is 100. Find out the horizontal distance from A to B and the R.L of B. [10]

Inst.station	Staff station	Vertical angle	Staff readings	Remarks
A	BM	-6º00'	1.100,1.153, 2. 060.	R.L. of B.M = 976.000
	B	8°00'.	0.982, 1.105, 1.188	

10. Discuss in detail about the field procedure of total station to calculate an area of field. [10]

OR

11. Discuss about Global Positioning System and list out the segments of Global Positioning System in detail. [10]

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