R16

Code No: 133BU

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year I Semester Examinations, February - 2024

SURVEYING

(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What do you mean by plane surveying?	[2]
b)	Define local attraction. What are the causes for local Attraction?	[3]
c)	Define the term contour interval.	[2]
d)	What is Datum? Write its importance in surveying.	[3]
e)	What are different types of traverses?	[2]
f)	Mention the essential parts of a transit theodolite.	[3]
g)	Find the degree of curve for 30m chain length.	[2]
h)	What is Tangential method Tachemetric surveyig?	[3]
i)	What are the important features of total station?	[2]
j)	What are the advantages of GPS?	[3]

PART – B

(50 Marks)

2. Explain the following terms:
a) Base line b) check line c) Tie line d) swing offset
e) oblique offset f) random line. [10]

OR

3. To find out the included angles in a closed traverse PQRSTP, the following observations were made with compass. Calculate the included angles after correcting for local attractions. [10]

Line	FB	BB
PQ	N 62°45'E	S 62°15'W
QR	N 21°00'E	S 20°45'W
RS	N71°30'W	S 71°30'E
ST	S 39°00'W	N 38°00'E
TP	S 54°30'E	N 53°15'W

4. Eight readings were taken with a level in sequence as follows: 1.585, 1.315, 2.305, 1.225, 1.325, 1.065, 1.815 and 2.325. The level was shifted after the third and sixth readings. The second change point was a benchmark of elevation 186.975. Find the reduced levels of the remaining stations. Use the rise and fall method. [10]

OR

5.a) Write a note on uses and advantages of contours.

b) Explain the method of computation of volume by the i) Trapezoidal rule (ii) Prismoidal rule. [4+6]

6. Draw neat sketch of a Vernier Theodolite. Describe its main parts and their functions. [10]

OR

7. What are various methods of adjustments of a closed traverse? Describe briefly. [10]

8. A Simple circular curve is to have a radius of 573m. The tangents intersect at chainage 1060 m and the angle of intersection is 12^0: Find a) Tangent distance b) Chain age at beginning and end c) Length of long chord d) Degree of curve e) Number of full and sub-chords. [10]

OR

9. To determine the gradient between two points A and B a tacheometer was set up at another station C and the following observations were taken, keeping the staff vertical.

Staff at	Vertical Angle	Stadia Readings (m)
A	$+4^0$ 20' 00"	1.300, 1.610, 1.920
B	$+0^0$ 10' 40"	1.100, 1.410, 1.720

If the horizontal angle ACB is 35020' 00''. Determine the average gradient between A and B, Take constants, k = 100, c = 0. [10]

10.a) Discuss basic principles of Global positioning system.

b) Write on Electromagnetic wave theory. [5+5]

OR

11. What are the space, control and user segments of GPS and their functions? [10]

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