

Code No: 182AU

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year II Semester Examinations, September – 2023

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)**

- Define local attraction and causes for local attraction. [1]
- Define magnetic Dip in compass surveying. [1]
- What are the uses of contours? [1]
- Write the formula to calculate volume using Meridian distance method. [1]
- Define axis of level tube in theodolite. [1]
- List the method of traversing with theodolite? [1]
- Define Tacheometric survey. [1]
- What are the elements of a simple circular curve? [1]
- Write brief note on Geographical Information System. [1]
- What are the demerits of a total station? [1]

PART - B**(50 Marks)**

- A 20 m chain was found to be 15 cm too long after chaining 1600 m. It was found to be 30 cm too long at the end of day's work after chaining a total distance of 3200 m. Determine the correct distance if the chain was correct before the commencement of the work.
 - Explain difference between plane surveying and Geodetic surveying. [5+5]
- OR**
- The bearings of the lines of a closed traverse are $290^{\circ} 30''$; $50^{\circ} 30''$; $196^{\circ} 0''$; $175^{\circ} 30''$; $112^{\circ} 0''$; $30^{\circ} 0''$; Calculate the included angles and the angular error.
 - Define surveying. What are the principles of surveying? Explain them briefly. [5+5]
- The following consecutive readings were taken with a level and 5 meter leveling staff on a 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. [10]

OR

5. In order to obtain area of a plot, a series of perpendicular offsets 2.2m, 3.0m, 1.65m, 2.46m, 2.0m, 2.25m and 1.68m were laid from a survey line to an irregular boundary at regular intervals of 5m. Determine the desired area using (a) Trapezoidal rule (b) Simpson's Rule. [10]

- 6.a) Explain how you would use the Transit Theodolite in the repetition method to measure the horizontal angle.
b) What is a closed traverse? What are the two checks applicable in this case? [5+5]

OR

- 7.a) What are face left and face right observations? Why is it necessary to take both these observations?
b) Discuss the procedure of measuring horizontal angle with a theodolite. [5+5]

- 8.a) Explain the principle of Tacheometry.
b) Explain the method of setting out a simple curve by two theodolites. [5+5]

OR

- 9.a) Explain the difference between tangential and stadia Tacheometry. How will you determine the stadia constants?
b) How are curves classified? Explain the following terms in connection with curves (i) Vertex (ii) Arc length (iii) Long chord of the curve. [5+5]

- 10.a) Explain briefly the working principle of electronic theodolite.
b) Explain briefly how GPS works to determine the position coordinates of a point. [5+5]

OR

- 11.a) Explain briefly about the salient features of total station.
b) Write briefly about the applications of Geographical Information System. [5+5]

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