

17AC1A0133
Code No: 133BU

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, November/December - 2018

SURVEYING
(Common to CE, CEE)

R16

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(25 Marks)

- 1.a) What are the primary classifications of surveying? [2]
- b) What are the advantages of observing back bearing in a closed traverse? [3]
- c) What do you mean by the following terms?
i) Meridian distance ii) Double meridian distance iii) Double parallel distance. [2]
- d) What are the methods of determination of area from plan? [3]
- e) What are the conditions to be satisfied in a closed theodolite traverse? [2]
- f) What are advantages of traversing over triangulation? [3]
- g) What are the advantages of Tacheometric surveying over other methods? [2]
- h) What is meant by Shift of a curve? [3]
- i) Mention advantages of using Total station. [2]
- j) Explain briefly the working principle of GPS. [3]

PART-B

(50 Marks)

- 2.a) Give in a tabular form, the difference between prismatic compass and surveyor's compass.
- b) Describe how you would range a survey line between two points which are not intervisible. [6+4]

OR

- 3.a) Define surveying. What are the principles of surveying? Explain them briefly.
- b) What is Magnetic declination? What are different types of variation in declination? [5+5]

4. What is meant by "area of zero circle" of a planimeter? How would you determine it? [10]

OR

- 5.a) Discuss the characteristics of contours. Give suitable sketches.
- b) Explain the method of computation of volume by Prismoidal formula. [5+5]

- 6.a) Explain the temporary adjustments of a transit.
- b) What are various checks to be performed on closed and open traverse? [5+5]

OR

7. Form the elevation of the chimney from the following data
- | Instrument Station | Reading on B.(m) | Angle of elevation | Remarks |
|--------------------|------------------|--------------------|---------|
|--------------------|------------------|--------------------|---------|

A	0.862	$18^{\circ}36'$	R.L of B.M. =421.380m
B	1.222	$10^{\circ}12'$	

Distance AB=50m

Stations A and B and the top of chimney are in the same vertical plane. [10]

- 8.a) What do you understand by tacheometry? Discuss the errors in stadia surveying. [5+5]
b) List the various methods of setting out a simple circular curve. [5+5]

9. Two straights AC and BC meet at an inaccessible point C. They are to be connected by a simple curve of radius 12 chains. Two points P and Q are selected on AC and BC respectively and the following measurements are made, Angle APQ= 160° ; Angle BQP= 164° ; PQ=86m. Chainage of P=71.546 chains.

Determine:

- a) The deflection angle of the curve
b) Tangent length
c) Length of the curve
d) Chainage of the end points of the curve

Take 1 chain=20m. [10]

- 10.a) Describe the salient features of a total station and explain how angles are measured using it.

- b) How ambiguity of the distance measured is removed in an EDM instrument. Illustrate with an example. [5+5]

OR

- 11.a) Write a short note on the errors in EDM.

- b) Suggest possible users of a GPS and how it might benefit them. [5+5]

[5+5]