

Time : 3 Hours]

[Total Marks : 100]

*Note :* Attempt all questions.

1 Attempt any four parts:

- (a) Explain the following terms:
  - (i) Precision
  - (ii) True error
- (b) What is local attraction? How it is detected and eliminated?
- (c) Define the following terms:
  - (i) True bearing
  - (ii) Magnetic bearing
  - (iii) back bearing
  - (iv) Magnitude declination
  - (v) Reference meridians.
- (d) What is face left and face right observations? Why it is necessary to take both face observations?
- (e) Write short note on electronic total station
- (f) Write the uses of counters.

2 Attempt any four parts

- (a) Write the characteristics of transition curve
- (b) Discuss the ideal transition curve
- (c) What do you mean by satellite stations? Write their functions.

- (d) What do you mean by strength of figures in triangulation system? Explain.
- (e) Differentiate between curvature and refraction.
- (f) Write the principle of traversing by compass.

**3** Attempt any **two** parts :

- (a) Write the advantages and disadvantages of plane tabling.
- (b) Explain the resection by three point problem.
- (c) The following bearings were observed in running a closed traverse.

<i>Line</i>	<i>F.B.</i>	<i>B.B.</i>
AB	71° 05'	250° 20'
BC	110° 20'	292° 35'
CD	161° 35'	341° 45'
DE	220° 50'	40° 05'
EA	300° 50'	121° 10'

Determine the correct bearings of the lines.

**4** Attempt any **two** parts

- (a) Explain different types of tapes.
- (b) Give the differences between prismatic compass and surveyor's compass in tabular form.
- (c) What are the different errors in theodolite work?  
How are they eliminated?

**5** Attempt any **two** parts :

- (a) Explain the methods of setting out simple circular curves.
- (b) Explain the principle of stadia systems with one example.
- (c) Write short note on :
  - (i) Principle of surveying
  - (ii) Vertical curves.