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 as sub questions.

PART – A

(25 Marks)

1.a) Distinguish between Magnetic declination and Dip. [2]
  b) What is contour gradient? [2]
  c) What is the advantage of fast needle method of traversing? [2]
  d) What are the different systems of tachometer survey? [2]
  e) What is tilt distortion? [2]
  f) Why is it important to 'work from the whole to part and never from part to whole' in Surveying? [3]
  g) How do you compute areas along irregular boundaries? [3]
  h) Write the principle of theodolite. [3]
  i) What is meant by 5^0 curve? What will be the corresponding radius of the curve? [3]
  j) Write short notes on photo maps and mosaics. [3]

PART – B

(50 Marks)

2.a) With neat sketches, explain obstacles in chaining.
  b) How would you determine the included angles from the bearings? Explain the method with the help of sketches. [5+5]

OR

3. The following bearings were obtained in running a closed traverse:

Line	Fore Bearing	Back Bearing
AB	$75^0 05'$	$254^0 20'$
BC	$115^0 20'$	$296^0 35'$
CD	$165^0 35'$	$345^0 35'$
DE	$224^0 50'$	$44^0 05'$
EA	$304^0 50'$	$125^0 05'$

At what stations do you suspect the local attraction? Determine the correct magnetic bearings. If the declination was $5^0 10'$ E, what are the true bearings? [10]

4. The following staff readings were observed successively with level, the instrument having been moved forward after the second, fourth and eight readings,
0.875, 1.235, 2.310, 1.385, 2.930, 3.125, 4.125, 0.120, 1.875, 2.030, 3.765m.
The first reading was taken with the staff held upon a B.M of elevation 132.135m. Enter the readings in level book form and reduce the levels. Apply the usual checks.   [10]

OR

5.a) What are the different methods of contouring? Explain.
  b) A series of offsets were taken from a chain line to a curved boundary line at intervals of 10m in the following order 0, 3.65, 4.80, 4.75, 5.65, 4.60, 5.95, 6.85 m. Compute the area between the chain line, the curved boundary and the end offsets by Simpson's rule.
[4+6]

6. Explain how you would measure with a Theodolite,
  a) The horizontal angle by repetition.
  b) The Vertical angle.   [5+5]

OR

7.a) Explain the temporary adjustments of a Transit.
  b) Write about traverse adjustments.   [5+5]

8. A tacheometer was setup at a station A and the following readings were obtained on a staff held vertically. Take Tacheometric constants K= 100 and C= 0.15.

Inst.station	Staff station	Vertical angle	Staff reading
A	BM	$-5^0\ 20'$	1.150, 1.800, 2.450
A	B	$+8^0\ 12'$	0.750, 1.500, 2.250

R.L of BM= 750.500m. Calculate the horizontal distance AB and RL of B.   [10]

OR

9.a) Explain the method of setting out of simple curve by offsets from the tangents.
  b) Write short notes on errors in EDM.   [5+5]

10.a) How do you determine the scale of an aerial photograph?
  b) What are the methods of measuring coordinates of photo images?   [5+5]

OR

11.a) Write a short notes on characteristics of photographic images.
  b) Obtain an expression for tilt distortion.   [5+5]

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