E   **E7250**

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017
Course Code: CE207
Course Name: SURVEYING (CE)

Max. Marks: 100   Duration: 3 Hours

PART A
Answer any two full questions, each carries 15 marks.   Marks

1 a) Define the terms; i) Base line ii) Check line iii) Tie line   (3)

   b) Explain the different types of bearings.   (4)

   c) The following readings were taken in a running closed compass traverse.   (8)

Line	FB	BB
AB	49 °55'	230 °00'
BC	177 °45'	356 °00'
CD	104 °15'	284 °55'
DE	165 °15'	345 °15'
EA	259 °30'	79 °90'

   i) State the stations which were affected by local attraction.

   ii) Determine the corrected bearings

   iii) Calculate the true bearings if the declination was 1° 30' W.

2 a) Explain the process of Profile levelling and Cross sectioning levelling.   (7.5)

   b) The following consecutive readings were taken with a level and 5m levelling (7.5)
   staff on a continuously sloping ground at a common interval of 30m. 0.375 (on
   Q); 1.030; 1.825; 2.935; 3.630; 4.785; 0.625; 2.105; 3.110; 4.485 (on R). Assume
   Reduced level of first point as 208.125m.Make up level page book, Calculate the
   reduced levels of all the points by collimation method and apply usual checks.
   Also find the gradient of QR.

3 a) What are the different methods of orientation in plane table surveying?   (7.5)

   b) What do you mean by Contouring? Describe the methods of contouring with its (7.5)
   merits and demerits.

PART B
Answer any two full questions, each carries 15 marks.

4 a) Define Mass Diagram. Describe its characteristics   (7.5)

b) Describe the methods of computation of volume by i) Average end formula and ii) Prismoidal formula   (7.5)

5 a) What is transit theodolite and what are the temporary adjustments in Theodolite?   (7.5)

  b) Explain the method of observing the horizontal angle by the method of repetition and reiteration in triangulation survey. What are the errors eliminated by the method of repetition?   (7.5)

6 a) Explain the terms;   (7.5)

    i) Satellite stations ii) reduction to centre ii) Opaque Signals

  b) The following perpendicular offsets were taken at 10m intervals from a survey line AB to an irregular boundary line: 2.50, 3.80, 4.33, 6.76, 5.30, 7.25, 8.95, 8.25 and 5.50.Calculate the area in sqm, enclosed between the survey line, the irregular boundary ,the first and the last offsets by i) Simpsons rule ii)the trapezoidal rule iii) the average ordinate rule   (7.5)

PART C
Answer any two full questions, each carries 20 marks.

7 a) Explain the terms;   (10)

    i) Azimuth   ii) Zenith and nadir   iii) Polar distance

    iv) Celestial sphere v) Co-altitude

  b) What are the advantages and applications of Total Station?   (10)

8 a) State the fundamental principle of the method of least squares and describe how to determine the most probable value in direct observations of equal weights?   (4)

  b) The following are the condition equations of different weights. Construct the normal equations for x, y and z.   (6)

    4x + 2y +z – 11 = 0, wt:3

    3x + 3y +2z – 9 =0, wt:2

    5x + y +3z – 16 =0, wt:4

  c) Explain the principle of Electromagnetic Distance Measurement and describe the types of EDM instruments?   (10)

9 a) What are the errors in Total Station survey?   (4)

  b) What are the fundamental parameters that can be measured using Total Station?   (6)

  c) Explain the laws of weights established from the method of least squares.   (10)

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