C1154

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY THIRD SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Name:

## Course Code: CE207

**Course Name: SURVEYING** 

Max. Marks: 100

**Duration: 3 Hours** 

Marks

### PART A

# Answer any two full questions, each carries 15 marks.

- 1 a) Define local attraction. Which are the different methods of eliminating local (5) attraction in a closed traverse?
  - b) The following consecutive readings were taken with a level and 5m levelling (10) staff on a continuously slopping ground at a common interval of 20 m, :0.385, 1.030,1.925,2.825,3.730,4.685,0.625,2.005,3.110,4.485. Prepare a page of field book and calculate the reduced level of points if first reading was taken on a bench mark of RL 208.125 m.
- 2 a) Define bearing. Which are the different systems of designating bearings? (4)
  - b) Distinguish between dip and declination, isogonic and agonic lines. (5)
  - c) The magnetic bearing of a line AB is S 28<sup>0</sup>30'E. Find the true bearing if (6) declination is 7<sup>0</sup>30' W
- 3 a) Explain the different methods of orientation in plane table survey. (6)
  - b) Define contour. Which are the different methods of locating contour? (9)

## PART B

# Answer any two full questions, each carries 15 marks.

- 4 a) Explain repetition method of measurement of horizontal angle. (5)
  - b) Two triangulation stations A and B are 60 km apart and have elevation 240 m (10) and 280 m respectively. Find minimum height of signal required at B so that line of sight may not pass near the ground than 2 m. The intervening ground has an elevation of 200 m.
- 5 a) Define mass diagram. What are its uses? (5)
  - b) Explain the different steps in triangulation survey. (10)
- 6 a) Explain prismoidal rule for calculating volume of a plot. (5)
  - b) A railway embankment is 10 m wide with side slope 1.5 (H) : 1 (V). Assuming (10) the ground to be levelled in a direction transverse to centre line, calculate the

volume contained in a length of 120 m, the centre height at 20 m interval being in metres 2.2, 3.7, 3.8, 4.0, 3.8, 2.8, 2.5 using trapezoidal and prismoidal formulae.

### PART C

# Answer any two full questions, each carries20 marks.

- a) Explain the principle of least squares.
  - b) Explain the principle of EDM measurement.
  - c) The following are the mean values observed in the measurement of three angles (10)A, B, C at one station, Calculate the most probable value.

$A = 76^{\circ}42'46.2''$	weight 4
$A+B = 134^{\circ}36'32.6''$	weight 3
$B+C = 185^{0}35'24.8''$	weight 2
$A+B+C = 262^{0}18'10.4''$	weight 1.

- 8 a) Define celestial horizon, hour angle, Zenith, Nadir, celestial equator. (10)
  - b) Explain the operation of total station.
- 9 a) Explain different types of EDM instruments. Which are the different types of (10) modulation of electromagnetic waves?
  - b) Form the normal equation for x, y, z in the following equation

3x+3y+z-4=0	weight 2
x+2y+2z-6=0	weight 3
5x+y+4z-21=0	weight 1

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(5)

(5)

(10)

(10)