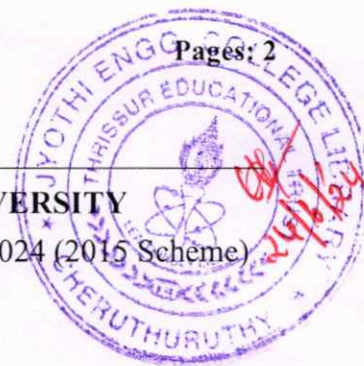


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S3 (S,FE) / S1 (PT) (S,FE) Examination June 2024 (2015 Scheme)

**Course Code: CE207****Course Name: SURVEYING**

Max. Marks: 100

Duration: 3 Hours

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

Marks

- 1 a) Define the terms: a) Base line b) Check line c) Tie line (3)
- b) What are the different types of levelling staff? State the merits and Demerits of each (5)
- c) The following bearings were taken in running a closed traverse while surveying. (7)

Line	FB	BB
AB	48°25'	230°00'
BC	177°45'	356°00'
CD	104°15'	284°55'
DE	165°15'	345°15'
EA	259°30'	79°00'

- i) State the stations which are affected by local attraction and by how much?
- ii) Determine the corrected bearings.
- iii) Calculate true bearing if declination was 1°30' W
- 2 a) With the help of a neat sketch explain reciprocal levelling. How the errors are eliminated? (5)
- b) The following consecutive readings were taken with a level and a 4m levelling staff on a continuously sloping ground at a common interval of 30m. (10)
- 0.780, 1.535, 1.955, 2.430, 2.985, 3.480, 1.155, 1.960, 2.365.
- RL of the first reading is given as 180.75m. Find the RL of all other points by the collimation method and also determine the gradient.
- 3 a) Explain the procedure of Orientation by Back sighting. (5)
- b) List the methods of locating Contours and explain its characteristics? (10)

PART B

Answer any two full questions, each carries 15 marks.

- 4 a) The following offsets were taken from a chain line to a hedge. (8)

Distance (m)	0	20	40	60	80	120	160	200	240	270	300
Offsets (m)	24	20	16	12	8	10	14	16	20	22	26

Compute the area by 1) Simpsons rule 2) Trapezoidal rule.

- b) Explain the procedure of horizontal angle measurement using theodolite. (7)
- 5 a) Explain the terms: Strength of Figure and Reduction to centre (6)
- b) Two triangulation stations A and B are 60 Kms apart and have elevations 240 m and 280 m respectively. Find the minimum height of signal required at B so that the line of sight may not pass near the ground than 2 m. The intervening ground may be assumed to have a uniform elevation of 200 m. (9)
- 6 a) Explain the significance of Satellite Stations (5)
- b) Explain the construction methods of Mass diagram with its uses. (10)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Explain the methods of modulation with its significance? (5)
- b) Find the most probable values of the angles A and B from the following observations at station O. (7)
- $A = 9^{\circ} 50' 36.6''$ weight 2
- $B = 54^{\circ} 38' 48.4''$ weight 3
- $A + B = 105^{\circ} 28' 28.5''$ weight 4
- c) Explain the different types of EDM instruments? (8)
- 8 a) What is meant by most probable value? Explain the principles of least squares? (5)
- b) How to determine the most probable value for indirectly observed quantities? (5)
- c) Explain the laws of weights with examples (10)
- 9 a) What are the advantages and applications of Total station? (5)
- b) Describe the properties of electromagnetic waves (5)
- c) Define the terms: a) Zenith b) Visible Horizon c) Vertical circle d) Celestial Sphere e) Hour Angle (10)
