S3 supple April 2018

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

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) Explain the principle of levelling with a neat sketch. (4)

b) Define the different types of survey stations and survey lines. (5)

c) Define Orientation. What are the different methods of orientation adopted in graphical method of surveying? (6)

2 a) Define contour. What are the factors affecting selection of contour interval? (7)

b) The following bearings were observed in traversing, with a compass, an area where local attraction was suspected. Find the amounts of local attraction at different stations, the correct bearings of lines and the included angles. (8)

Line	F.B.	B.B.
AB	68°15'	248°15'
BC	148°45'	326°15'
CD	224°30'	46°00'
DE	217°15'	38°15'
EA	327°45'	147°45'

3 a) How are bearings designated? Distinguish between them. (6)

b) The following consecutive readings were taken with a level and a 4m levelling staff on a continuously sloping ground at common intervals of 30m. (9)

8.855 (on A), 1.545, 2.335, 3.115, 3.825, 0.455, 1.380, 2.055, 2.855, 3.455, 0.585, 1.015, 1.850, 2.755, 3.845 (on B).

The RL of A was 380.500m. Make entries in a level field book and apply the usual checks. Determine the gradient.

PART B

Answer any two full questions, each carries 15 marks

4 a) State Simpson's rule and trapezoidal rule for computation of area. (3)

b) What is meant by triangulation figures? Explain each with neat sketches. (5)

c) The elevation of two triangulation stations A and B, 100 km apart, are 180 m and 450 m respectively. The intervening obstruction situated at C, 75 km from A, has an elevation of 259 m. Ascertain if A and B are intervisible. If not, by how much B should be raised so that the line of sight must nowhere be less than 3 m above the surface of the ground, assuming A as the ground station. (7)

5 a) Explain the construction and characteristics of mass diagram. (5)

b) A road at a constant RL of 180.00 m runs North to South. The ground East to West is level. The surface levels along the centre line of the road are as follows: (10)

Chainage (m)	0	30	60	90	120	150	180
Level (m)	183.5	182.45	182.15	181.55	180.95	182.05	180.8

Compute the volume of cutting using Trapezoidal formula and Prismoidal formula. Given that the width of formation level is 8m and the side slopes 1.5 to 1.

6 a) List the factors which determine the inter-visibility between triangulation stations. (5)

b) List the temporary adjustments of a theodolite. (5)

c) Explain the horizontal angle measurement procedure. (5)

PART C

Answer any two full questions, each carries 20 marks

7 a) Explain any five laws of weights. (5)

b) Define the following terms: (10)

i) Observer's meridian ii) Zenith distance iii) Azimuth

iv) Declination v) Hour circle

c) Explain the advantages of total station survey. (5)

8 a) The following are the mean values observed in the measurement of three angles A, B and C at one station. (13)

A = 76°42'46.2" with weight 4, A+B = 134°36'32.6" with weight 3

B+C = 185°35'24.8" with weight 2, A+B+C = 262°18'10.4" with weight 1

Calculate the most probable value of each angle.

b) Define modulation and explain the different methods of modulations. (7)

9 a) Define the term 'most probable value'and explain the method of finding least squares. (10)

b) What is meant by EDM instruments? Explain different types of EDM instruments with examples (10)

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