Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Third Semester B.Tech Degree (S,FE) Examination December 2022 (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 contour interval and horizontal equivalent? Explain any three uses of contour. (7.5)

b) Define Orientation. Explain any two methods of orientation adopted in graphical method of surveying? (7.5)

2 a) The following staff readings were taken with a level, the instrument having been moved after third and sixth reading: 2.200 1.620 0.980 2.250 2.840 1.280 0.600 1.960 1.450. The RL of first point is 100.00 m. Rule out a page of level book and enter the above readings. Calculate the RL of all points. Apply the checks. (7.5)

b) A closed traverse is conducted with five stations A, B, C, D and E taken in anticlockwise order, in the form of a regular pentagon. If the FB of AB is 30°0', find the FBs of the other sides. (7.5)

3 a) Differentiate between: (8)

1) Prismatic compass and Surveyors compass
2) Magnetic declination and Magnetic dip

b) Explain the principle of levelling with a neat sketch. (7)

PART B

Answer any two full questions, each carries 15 marks.

4 a) The following perpendicular offsets were taken at 50 m intervals from a survey line to an irregular boundary line : 10.6, 15.4, 20.2, 18.7, 16.4, 20.8, 22.4, 19.3, 17.6; Calculate the included area between the survey line, irregular boundary line and the first and last offsets by (i) Trapezoidal rule; and (ii) Simpson's rule. (7.5)

b) Define the following terms while manipulating a transit Theodolite : (7.5)
i) Transiting ii) Swinging the Telescope iii) Face left and face right iv) Axis of the Telescope v) Vertical axis

5 a) What is a Mass Haul diagram? How it is constructed? What are its uses? (7.5)

b) Two triangulation stations A and B are 40 km apart and have elevations of 170 m and 166 m respectively. Find the minimum height of signal required at B so that the line of sight may not pass nearer the ground than 3 m. The intervening ground may be assumed to have a uniform elevation of 150 m. (7.5)

6 a) What is meant by a satellite station and reduction to Centre? Explain. (8)

b) Explain various types of triangulation figures used in survey. (7)

PART C

Answer any two full questions, each carries20 marks.

7 a) Explain the terms (i) altitude of the star ii) Azimuth of the star iii) Declination of the star iv) Hour Angle v) Right Ascension (10)

b) What are the laws of weights? Explain with examples. (10)

8 a) The observations closing the horizon at a station are : (10)

A = 24° 22' 18 .2" weight 1

B = 30° 12' 24 .4" weight 2

A + B = 54° 34' 48 .6" weight 3

C = 305° 35' 13.9" weight 2

B + C = 335° 37' 38.0" weight 3

Find the most probable values of the angles A, B and C.

b) Explain (i) Weight of an observation and (ii) Normal equation. (10)

9 a) Explain the field procedure for total station survey. What are its advantages and applications? (15)

b) Explain the principles of EDM (5)

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