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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S3 (R,S) / S3 (WP) (R,S) / S1 (PT) (S,FE) Examination November 2024 (2019 Scheme)

Course Code: CET205

Course Name: SURVEYING & GEOMATICS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions. Each question carries 3 marks Marks

1 Explain the following terms. (a) Base line,(b) check line(c) tie line (3)

2 What is local attraction? How is it detected and eliminated? (3)

3 What is meant by satellite station and reduction to centre? (3)

4 Define terms(a) face right and face left observations;(b) swinging the telescope; (c)transiting the telescope (3)

5 Distinguish between loose needle method and fast needle method (3)

6 Define the terms (a)independent quantity(b)conditioned quantity(c) weight of an observation (3)

7 What is compound curve? What are the elements? (3)

8 Discuss the principle of EDM (3)

9 Explain components of GPS? (3)

10 Discuss about the applications of GIS. (3)

PART B

Answer any one full question from each module. Each question carries 14 marks

Module 1

11 (a)The following bearings were taken while conducting a closed traverse with a compass in a place where local attraction was suspected. Find corrected included angles (10)

Line	FB	BB
AB	80° 45’	260° 00’
BC	130° 30’	311° 35’
CD	240° 15’	60° 15’
DA	290° 30’	110° 10’

(b) Explain dip and declination. (4)

12 (a)The following consecutive reading were taken with a level and a 4.0 staff on a continuously sloping ground at a coon interval of 30 m 0.780,1.535,1.955,2.430,2.985,3.480,1.155,1.960,2.365,3.640,0.935,1.0451.630and 2.545. The reduced level of first point was 180.750m. Rule out a page of level field book and enter the above readings. Calculate the reduced level of points. Also calculate the gradient of line joining the first and last points. (10)

(b)Define contour. Write a short note on uses of contour maps for engineering purposes (4)

Module 2

13 (a)The following perpendicular offsets were taken from a chain line to an irregular boundary. calculate the area between irregular boundary and the chain line by i)average ordinate rule ii) mid ordinate rule iii)trapezoidal rule iv)Simpson's rule (8)

Chainage (m)	0	30	60	90	120	150-	180	210
Offset (m)	0	2.65	3.80	3.75	4.65	3.60	5.00	5.80

(b) Define tachometry what is the principle of stadia tachometry (6)

14 (a)From an eccentric station S, 12.25 to the west of the main station, the following angles were measured.<BSC=76 25 32;<CSA=54 32 20.the stations S and Care to the opposite sides of line AB. calculate the correct angle ABC if the length AB and BC are5286.5m and 4932.2m respectively (7)

(b)Explain mass diagram and its characteristic features. (7)

Module 3

15 (a)Angles were measured on a station and the observation were recorded as follows (8)

angle	value	weight
A	45°30'10"	2
B	40°20'20"	3
A+B	85°50'10"	1

find MPVs of angles A and B

(b)Discuss about types of errors. (6)

16 (a)Find omitted measurements for below closed traverse. (7)

line	length	RB
AB	1000	S67W
BC	512	N10E

line	length	RB
CD	1504	S65E
DA	?	?

(b)A man travels from a point A due west an reaches appoint B the distance between the point A and B is 139.6 m. Calculate the latitude and departure of line AB (7)

Module 4

17 (a)What are applications and advantages of total station survey (5)

(b)What is various methods of setting out simple circular curve. Explain briefly the Rankine method of deflection angle. (9)

18 Two tangents meet at chainage 1236m, the deflection angle being 42°. A circular curve of radius 400m is to be introduced in between them. Calculate the tangent length, length of circular curve, chainage of the tangent points and deflection angles for setting out the first three pegs and the last peg on the curve by Rankine's method (pegs are to be fixed at 20m interval). (14)

Module 5

19 (a)What is spectral reflectance? Discuss the spectral reflectance of soil water and vegetation. (7)

(b)What is map projection in GIS. Discuss the various types of map projection (7)

20 (a)Explain static and kinematic methods of GPS survey (8)

(b)Discuss briefly electromagnetic energy and electromagnetic spectrum (6)