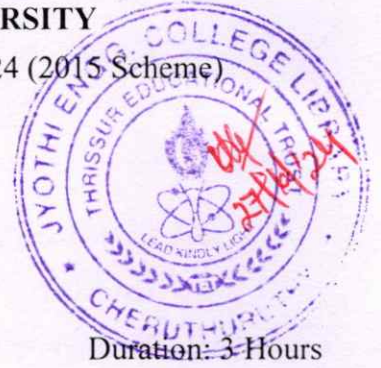Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S5 (S, FE) / S5 (PT) (S,FE) Examination June 2024 (2015 Scheme)

Course Code: CE307
Course Name: GEOMATICS

Max. Marks: 100   Duration: 3 Hours

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

1   a)   Explain direct method of traversing with neat sketch.   (7)

    b)   In a traverse, the latitude and departure of the sides were calculated and it was   (4)
observed that Σ Latitude = 1.65m and Σ Departure = -2.76m. Calculate the length
of closing error and its orientation.

    c)   Why should the reverse curve be avoided on highways and highspeed tracks?   (4)

2   a)   Explain the procedure of balancing a traverse by Bowditch's rule.   (5)

    b)   Calculate latitudes, departures and closing error for the given traverse.   (10)
Apply Bowditch's rule and obtain the corrected latitude and departure.

Line	Length	WCB
AB	89.31	45º 10'
BC	219.76	72º 05'
CD	151.18	161º 52'
DE	159.10	228º 43'
EA	232.26	300º 42'

3   a)   Two tangents intersect at chainage of 1000m, the deflection angle being 30°.   (10)
Calculate all the necessary data for setting out a circular curve of radius 200m by
the method of offset from the chords produced, taking a peg interval of 20m.

    b)   Mark and explain the elements of a compound curve with a neat sketch.   (5)

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

4   a)   Sketch and explain the components of GPS.   (6)

    b)   Describe satellite ranging in GPS.   (5)

    c)   List the types of errors likely in GPS ranging. Explain any two in detail.   (4)

5   a)   Explain code-based and carrier-based GPS measurement techniques.   (8)

    b)   Differentiate between rapid static method and kinematic method of GPS surveying.   (7)

6 a) Illustrate visibility diagram with neat sketch. (5)

b) Explain the field operations in GPS. (5)

c) Brief on the significance of DGPS. (5)

PART C
Answer any two full questions, each carries 20 marks.

7 a) Sketch and explain electromagnetic spectrum and its various wavelength bands. (8)

b) Explain the spectral reflectance of soil. (6)

c) Distinguish between active sensors and passive sensors. (6)

8 a) List and explain various data input methods in GIS. (8)

b) Differentiate between raster and vector data representation. (6)

c) What is buffering in GIS? Support with an example. (6)

9 a) Discuss Universal Mercator Projection. What are its properties and limitations. (8)

b) Explain spatial resolution and spectral resolution with necessary examples. (7)

c) Write a note on RMS error in GIS. (5)

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