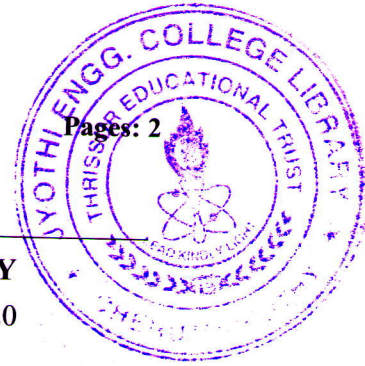


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Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
Fifth semester B.Tech degree examinations (S) September 2020

**Course Code: CE307**  
**Course Name: GEOMATICS**

Max. Marks: 100

Duration: 3 Hours

**PART A**

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

- 1 a) What are the angular checks in a closed traverse? (3)
- b) The consecutive coordinates of a theodolite traverse ABCDEA are given below. (12)
- Balance the traverse and find the adjusted values and independent coordinates, assuming that those of A are (200N, 100 E).

Line	Latitude		Departure	
	N	S	E	W
AB	21.98			68.04
BC		82.69		4.27
CD		41.57	13.48	
DE		13.54	36.04	
EA	115.33		22.36	

- 2 a) Calculate the offset at 25m intervals along the tangents to locate a curve of radius 500m by methods of i) radial offset ii) perpendicular offset. (8)
- b) Detail the steps in the setting out of a compound curve by deflection angle. (7)
- 3 a) The length and bearing of the sides of a closed traverse ABCDEA is given below. Determine the closing error of the traverse. (8)

Line	Length (m)	Bearing
AB	186	N 24° 30' E
BC	164	N 73 ° 18' W
CD	303	S 63 ° 44' W
DE	162	S 42 ° 30' E
EA	240	N 86 ° 08' E

- b) List the conditions to be fulfilled by a transition curve. (4)
- c) What is a reverse curve? (3)

**PART B**

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

- 4 a) What are the components of GPS and their functions? (10)
- b) How does satellite geometry affect the accuracy of GPS? (5)
- 5 a) Distinguish between static and kinematic survey. What are the advantages of these methods? (5)
- b) Discuss the steps in the planning and preparation of GPS survey. (10)
- 6 a) What is the principle of working of DGPS? What are its advantages? (9)
- b) Enumerate the applications of GPS. (6)

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) Illustrate the effect of EM energy interactions with the earth's surface. (8)
- b) Distinguish between active and passive sensors. (6)
- c) Draw the electromagnetic spectrum specifying the spectral regions (6)
- 8 a) Illustrate the difference between spatial data and attribute data with example. (8)
- b) Enumerate the various methods of transformation from one coordinate system to another and their effect. (8)
- c) Discuss the various sources of data input in GIS. (4)
- 9 a) Write a note on multi spectral scanning. (8)
- b) Distinguish between temporal and radiometric resolution. (6)
- c) Explain clearly with example, the overlay operation in GIS. (6)

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