

Reg No.: \_\_\_\_\_

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018**

**Course Code: CE307**  
**Course Name: GEOMATICS (CE)**

Max. Marks: 100

Duration: 3 Hours

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

Marks

- 1 a) Distinguish between closed traverse and open traverse. (5)
- b) A closed traverse ABCDA is conducted in field. The survey details are as given below. (10)

Line	Length (m)	Bearing
AB	371	$0^{\circ}42'$
BC	164	$94^{\circ}42'$
CD	245	$183^{\circ}04'$
DA	192.5	$232^{\circ}51'$

Compute the coordinates for the traverse by applying correction to constitutive coordinates by Bowditch's rule.

- 2 a) Explain the graphical method of balancing of traverse for compass survey. (5)
- b) Explain Rankine's method of setting out of a simple curve. (5)
- c) What are the requirements of transition curve? (5)
- 3 a) Show the elements of compound curve with a neat sketch. (5)
- b) Two roads having deviation angle  $40^{\circ}$  at apex point V are to be joined by a 300 m radius circular curve. If the chainage of the apex point is 1200.2 m, calculate the ordinates from long chord at 15 m interval to set out the curve. (10)

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

- 4 a) Explain the types of Global Navigational Satellite Systems. (7)
- b) Explain the components and principles of GPS. (8)
- 5 a) How is receiver position located by satellite ranging? (4)
- b) What are the errors and biases of GPS? (7)
- b) Explain DGPS. (4)
- 6 a) What are the various GPS surveying Techniques? Compare the various techniques. (10)
- b) Explain the planning and preparation phases of GPS Survey. (5)

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

- 7 a) What is electromagnetic spectrum? State the wavelength regions, along with their (8)

- uses, for remote sensing applications.
- b) Differentiate between active and passive remote sensing. (6)
  - c) Explain remote sensing observation platforms. (6)
- 8 a) Explain the energy interactions with atmosphere and earth. (6)
- b) What are the various resolutions in remote sensing? (8)
  - c) What are the application areas of GIS and remote sensing? (6)
- 9 a) What are the components of GIS? (6)
- b) Describe briefly the raster and vector data structures. Discuss their relative advantages and disadvantages. (8)
  - c) Explain Geographic and Projected coordinate systems. (6)

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