

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

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

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

**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) Using a neat sketch explain axis method for balancing a traverse (5) Marks
- b) In a closed traverse *ABCDEF*, the angles and the lengths of sides were measured as given below. Balance the traverse using Bowditch's method and compute the corrected co-ordinates if the co-ordinate of station A is (1500, 1500)

Line	Length (m)	WCB	(10)
AB	355.52	58°30'00"	
BC	476.65	185°12'30"	
CD	809.08	259°32'40"	
DE	671.18	344°35'40"	
EF	502.20	92°30'30"	
FA	287.25	131°22'00"	

- 2 a) Mark the elements of a compound curve on a neat sketch and write down the relation ship between different elements. (5)
- b) Two straights intersect making a deflection angle of 59°24', the chainage at the intersection point being 880 m. The straights are to be joined by a simple curve commencing from chainage 708 m. If the curve is to be set out using 30-m chords by the method of offsets from the chord produced, determine the first three offsets. (10)
- 3 a) Why should we avoid the use of reverse curve in highways and high-speed tracks (4)
- b) Explain setting out of a simple circular curve using two theodolite method (5)
- c) Sketch the different types of vertical curves (6)

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

- 4 a) Explain the signal structure used in GPS. (5)
- b) Illustrate satellite ranging procedure. (5)
- c) How does satellite geometry affect satellite positioning precision (5)
- 5 a) List the advantages and disadvantages of GPS surveying methods (6)
- b) What is static, rapid static and kinematic GPS positioning methods (9)

- 6 a) What is code phase and carrier phase measurements (6)  
b) Detail the procedure for data processing and report preparation in a GPS survey (9)

### PART C

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

- 7 a) What is remote sensing and how is it carried out? (6)  
b) With a neat sketch, explain spectral reflectance of vegetation (6)  
c) Explain along track and across track scanning with figures. (8)
- 8 a) List out the applications of remote sensing. (4)  
b) Write a note on the energy interactions in the atmosphere. (8)  
c) Explain spatial and attribute data, vector and raster data used in GIS. (8)
- 9 a) Explain the step by step procedure for preparing a GIS map (10)  
b) Detail the different types of map projections according to the projection surface used (10)

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