

Reg No.: _____

Name: _____

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

Course Code: CE207

Course Name: SURVEYING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

- 1 a) What is Ranging and explain types of ranging (6)
 b) Explain the principle of chain surveying (4)
 c) Explain survey stations and various survey lines in chain surveying (5)
- 2 a) Define Orientation and what are the methods of orientation (7)
 b) The following bearings were observed in traversing with a compass, an area where local attraction was suspected. Find the correct bearings of lines (8)
- | Line | FB | BB |
|------|---------|----------|
| AB | 292°15' | 111° 45' |
| BC | 221°45' | 41° 45' |
| CD | 90°05' | 270° 0' |
| DE | 80°35' | 261° 40' |
| EA | 37°0' | 216° 30' |
- 3 a) What are the characteristics and uses of contour (7)
 b) The following consecutive readings were taken with a level and 4m levelling staff on a continuously sloping ground at common interval of 20m.
 0.602,1.234,1.860,2.574,3.450,0.235,1.285,2.820,3.255,0.525,1.824,2.722,2.985. The reduced level of the first point was 228.225m. Calculate the reduced levels of the points and also find the gradient of the line joining first and last points (8)

PART B

Answer any two full questions, each carries 15 marks.

- 4 a) Define Triangulation surveying and explain its classifications. (7)
 b) From a satellite station O, 6 metres from the main triangulation station P, the following directions were observed
 $P = 0^\circ 0'0''$, $Q = 140^\circ 18'30''$, $R = 230^\circ 20'4''$, $S = 290^\circ 4'10''$ (8)
 The length PQ, PR and PS were computed to be 3260m, 4020.4m and 3082.6m respectively. Determine the directions of PQ, PR and PS

- 5 a) Explain the characteristics and uses of mass haul diagram (7)
- b) A series of offsets were taken from a chain line to a curved boundary line at intervals of 15m in the following order 1.15, 2.65,3.80,3.70,4.65,3.60,4.95,5.85m. Compute the area by a) average ordinate rule b) trapezoidal rule c) Simpsons rule (8)
- 6 a) List the fundamental lines of transit theodolite (5)
- b) Discuss various types of signals used for triangulation survey (5)
- c) Explain the horizontal angle measurement by repetition method (5)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Write short note on weight of an observation (5)
- b) What are the advantages of using Total station survey (7)
- c) Briefly explain the field *procedure* of Total station survey for co ordinate determination (8)
- 8 a) Find the most probable values of the following observations at station O (10)
- A = $9^{\circ} 48' 36.6''$ wt 2
- B = $54^{\circ} 37' 48.3''$ wt. 3
- A + B = $104^{\circ} 26' 28.5''$ wt 4
- b) Explain types of EDM (10)
- 9 a) Define the term most probable value and explain the different methods for finding it. (10)
- b) Define the following terms
1. The celestial sphere
 2. The Zenith (10)
 3. Azimuth
 4. Declination
 5. Hour circle
