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**SUBJECT CODE NO:- H-201**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**S.E. (Civil)**  
**Surveying - II**  
**(REVISED)**

[Time: Three Hours]

[Max.Marks: 80]

Please check whether you have got the right question paper.

- N.B
- i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
  - ii) Answer any two questions for the remaining in each section
  - iii) Figures the right indicates full marks
  - iv) Assume suitable data if necessary

**Section-A**

- Q.1 Answer the following (Any Five) 10
- 1) Define Geodetic survey
  - 2) Give the classification of signals
  - 3) Define Independent quantity
  - 4) Define weight of an observation
  - 5) Define Most probable value
  - 6) Define conditioned quantity
  - 7) What is the principle of triangulation
  - 8) Define conditioned quantity
- Q.2 A. What is meant by a satellite station & reduction to center? Derive an expression for reducing the angles measured at the satellite station to center 08
- B. What is figure adjustment in case of triangulation survey Explain in detail 07
- Q.3 A. Derive the formula for the correction to be applied when observation is made on the bright portion 08
- B. Find the most probable value of the angle A from the following observation equations 07
- $2A = 20^{\circ}12'20.4''$  weight 2
- $2A = 40^{\circ}24'42''$  weight 3
- Q.4 A. Explain adjustment of a quadrilateral with a central station by method of least squares 08
- B. The following are the observed values of an angle: 07
- | Angle     | Weight |
|-----------|--------|
| 40°20'20" | 2      |
| 40°20'18" | 2      |
| 40°20'19" | 3      |
- Find
- a. P.E of single observation of unit weight
  - b. P.E of weighted arithmetic mean
  - c. P.E of single observation of weight 3

- Q.5 Write short note on (Any Three) 15
- 1) Topographic surveying
  - 2) Tunnelling
  - 3) Base line measurement
  - 4) Axis signal correction
  - 5) Setting out a bridge

Section-B

- Q.6 Answer the following(Any Five) 10
- 1) Define curve
  - 2) Explain relation between radius & degree of curve
  - 3) Explain types of curve
  - 4) Define compound curve
  - 5) What is meant by trigonometrical levelling
  - 6) Explain modulation in EDM
  - 7) Express mathematically of apex distance in curves

- Q.7 A. Explain setting of simple circular curve by offsets from long chord 07
- B. Two straight lines  $T_1I$  &  $T_2I$  08  
 Intersect at chainage [375+12] the angle of deflection being  $110^\circ$  calculate the chainage of the tangent points of a right handed circular curve of 400m radius, take chain length 20m

- Q.8 A. Explain the applications of EDM 07  
 B. Explain phase comparison in detail 08

- Q.9 A. Derive the expression for compound curve 07  
 B. Find the R.L of Q from the following observation: 08  
 Horizontal distance between P&Q = 9290M  
 Angle of Elevation from P to Q =  $2^\circ 06' 18''$   
 Height of signal at Q = 3.96M  
 Height of instrument at P = 1.25M  
 Coefficient of refraction = 0.07  
 $R \sin 1'' = 30.88M$  R.L of P=396.58M

- Q.10 Write short note on (Any Three) 15
- 1) Reverse curve
  - 2) Transition curve
  - 3) Geode meter
  - 4) Super Elevation
  - 5) Lemniscate curve