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| Seat No. | |
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S.E. (Civil) (Part - II) (Semester - IV) Examination, November - 2014

SURVEYING - II

Sub. Code : 43587

Day and Date : Thursday, 27 - 11 - 2014

Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :
- 1) Solve any three questions from each section.
 - 2) Figures to the right indicate full marks.
 - 3) Use of non programmable calculator is allowed.
 - 4) Assume any additional data if required and state them clearly.
 - 5) Draw neat sketches wherever necessary.

SECTION - I

- Q1)** a) Explain Tangential system of Tacheometry. [7]
b) Find the gradient from P to Q using the data given below. Take tacheometric constants as 100 and 0.3 m.

| Inst. stn. | Staff stn. | Bearing | Vertical Angle | Hair Readings |
|------------|------------|---------|----------------|---------------------|
| A | P | 84°36' | 3°30' | 1.350, 2.100, 2.850 |
| | Q | 142°24' | 2°45' | 1.955, 2.875, 3.765 |

[10]

- Q2)** a) Explain the different orders of Triangulation with their specifications. [6]
b) Explain the method of base line measurement. [5]
c) Two horizontal distances of 50 m and 80 m were accurately measured and the intercepts on the staff between the outer stadia wires were 0.496 m and 0.796 m respectively. Calculate the tacheometric constants. [6]

P.T.O.

Q3) a) Define the terms :

[8]

- i) Celestial sphere
- ii) Celestial Equator
- iii) Celestial Poles
- iv) Zenith and Nadir Points

b) Explain Azimuth - Altitude Coordinate system.

[6]

c) What do you understand by the term spherical Excess.

[2]

Q4) Write short notes on :

[16]

- a) Reduction of Stadia notes
- b) Tellurometer
- c) Direct Reading tacheometer
- d) Importance of Reconnaissance in Triangulation survey

SECTION - II

Q5) a) What is meant by "Shift of a curve", Derive an expression for shift of a curve. [8]

b) Explain the method of setting out a simple circular curve by the method of Offsets from chords produced. [8]

Q6) a) A vertical curve connecting two grades of + 0.6% and -0.6%. The chainage and the R.L. of intersecting point are 500m and 455.50m respectively. The rate of change of grade is 0.1% Per 30 m. Calculate the chainage and R.L. of the Tangent points, Vertex point and length of vertical curve. [10]

b) Explain distortion due to height in vertical photograph. [7]

Q7) a) A camera having focal length of 20 cm is used to take a vertical photograph to a terrain having an average elevation of 1500 m. What is the height above sea level at which an air-craft must fly in order to get the scale of 1:9000. [6]

b) What are the different elements in remote sensing? [6]

c) What are the objectives of a GIS? [5]

Q8) Write short notes on any three : [16]

a) Reverse curve.

b) Photo Theodolite

c) Applications of remote sensing

d) Sensors used in remote sensing



| Instr. | Station | Horizontal | Vertical | Hair Readings |
|--------|---------|------------|----------|-------------------|
| | | 8436 | 1710 | 1.150 2.100 2.550 |
| | | 11500 | 245 | 1.850 2.250 2.750 |