

B.E. Civil Engineering (Model Curriculum) Sem-III  
**003 : Surveying and Geomatics**

P. Pages : 2

Time : Three Hours



**GUG/W/22/13711**

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What are the basic principle of surveying? 4
- b) How chain tested and adjusted? 4
- c) The following bearings were observed in running a close traverse 8

| Line | FB       | BB       |
|------|----------|----------|
| AB   | 191° 45' | 13° 0'   |
| BC   | 39° 30'  | 222° 30' |
| CD   | 22° 15'  | 200° 30' |
| DE   | 242° 45' | 62° 45'  |
| EA   | 330° 15' | 147° 45' |

Determine correct bearing of line.

**OR**

2. a) What is the principle of Plane Table Survey. 4
- b) What is meant by local attraction? How it is detected? 4
- c) What are the different type of level? Enlist them draw neat sketch of dumpy level and label its part. 8
3. a) When reciprocal levelling is carried out? Describe the method along with sketch. 6
- b) A tachometer was set up at station C Following reading were obtain on staff vertically held. 10

| Instrument station | Staff station | Vertical Angle | Hair  | Reading      | Remark    |
|--------------------|---------------|----------------|-------|--------------|-----------|
| C                  | BM            | -5° 20'        | 1.150 | 1.800, 2.450 | RL of BM  |
| D                  | D             | +8° 12'        | 0.750 | 1.500, 2.250 | 750.000 m |

**OR**

4. a) What are the function of theodolite explain those. 8
- b) What is closing error and how it balance graphically. 8

5. a) What is phase correction? Derive the expression to find phase correction when line of sight is towards the bright portion of signal. **8**
- b) Explain well condition triangles. **4**
- c) Explain satellite station. **4**

**OR**

6. a) What are the factors consider in selection of triangulation station. **8**
- b) What is the function of (i) Towers (ii) Signals. **8**
7. a) A line AB 2000 m long, laying at an elevation of 500 m measures 8.65 cm on a vertical photograph for which focal length is 20 cm. Determine scale of the photograph in an area, the average elevation of which is about 800 m. **8**
- b) What are the uses of GIS & GPS. **8**

**OR**

8. The following records where obtained in a traverse survey where length and the bearing of a line DA were not connected. **16**

| Line | Length | Bearing  |
|------|--------|----------|
| AB   | 75.50  | 30° 24'  |
| BC   | 180.50 | 110° 36' |
| CD   | 60.25  | 210° 30' |
| DA   | ?      | ?        |

Compute the length and bearing of line DA.

9. Write a short note on **any four**. **16**
- 1) EDM
  - 2) Total Station
  - 3) Compass Traversing
  - 4) GPS
  - 5) Optical Theodolite
  - 6) Remote Sensing

**OR**

10. a) Write down uses of EDM & total station. **8**
- b) Write the applications of GPS & GIS. **8**

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