# 003 - Surveying and Geomatics

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

**1.**  a)  What are the basic principle of surveying? Also give classification of survey.     **6**

   b)  Convert whole circle bearing in quadrantal bearing     **4**
       i)   195º15'                        ii)  80º45'
       iii) 139º30'                        iv)  286º00'

   c)  Distinguish between Prismatic compass & surveyor compass.     **6**

**OR**

**2.**  a)  The following staff readings were taken successfully with level the instrument having     **8**
           been moved forward after fourth & ninth readings.
           3.150, 2.245, 1.125, 0.860, 3.125, 2.760, 1.835, 1.470, 1.965, 1.225, 2.390 & 3.035m.
           The first reading taken on a benchmark of elevation 98.085m find all RL.

   b)  What is principle of plane table survey? Explain orientation.     **4**

   c)  State the concept of local attraction.     **4**

**3.**  a)  What are the fundamental lines of transit theodolite, Explain relation between them.     **6**

   b)  What are the characteristics of contour.     **6**

   c)  State the principle of tacheometry.     **4**

**OR**

**4.**  a)  The following records are obtained in a traverse survey were the length & bearing of the     **10**
           last line were not recorded:

| Line | Length (m) | Bearing |
|------|-----------|---------|
| AB   | 75.50     | 30º24'  |
| BC   | 180.50    | 110º36' |
| CD   | 60.25     | 210º30' |
| DA   | ?         | ?       |

   Compute length & bearing of line DA.

   b)  Write a note on methods of Tacheometry.     **6**

| **5.** | a) | What are the different factors consider in selection of triangulation station. | **5** |
|---|---|---|---|
| | b) | Write various correction applied to base line measurement. | **5** |
| | c) | What are different types of triangulation. | **6** |

**OR**

| **6.** | a) | What is satellite station. Explain with net sketch. | **6** |
|---|---|---|---|
| | b) | What are the functions of<br>i)   Signals<br>ii)  Tower. | **10** |

| **7.** | a) | State the uses of photogrammetry. | **8** |
|---|---|---|---|
| | b) | A scale of an aerial photography is km=100m The photograph size is $20 \times 20\,cm$. Determine the no. of photographs required to cover an area $10km \times 10km$ if longitudinal overlap is 60% and side overlap is 30%. | **8** |

**OR**

| **8.** | a) | What are components of GIS? | **8** |
|---|---|---|---|
| | b) | State the application of GIS in Civil Engineering. | **8** |

| **9.** | a) | What is role of GPS in civil Engineering. Also state about India's navigation system. | **8** |
|---|---|---|---|
| | b) | What is remote sensing? State importance & need of remote sensing. | **8** |

**OR**

| **10.** | | Write a short note on **any four.**<br>i)   GPS<br>ii)  Remote sensing.<br>iii)  GIS<br>iv)  Electronic Distance meter<br>v)  Total station. | **16** |
|---|---|---|---|

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