**BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY**

**Question Bank (I-Scheme)**

**Name of subject: Advanced Surveying Unit Test: I** **Subject code: 22301 Course: CE Semester: III**

**CHAPTER 1 (Plane Table Surveying)**

**(2 Marks)**

a. State the situations where plane table survey is suitable.

b. State the purpose of alidade and ‘U’ fork in plane table surveying.

**(4 Marks)**

a. State accessories required for plane table survey along with their use.

b. Define orientation and explain back sight method of orientation with sketch.

c. Explain with sketch Traversing method of plane table surveying.

d. State any 4 advantages & 4 disadvantages of plane table survey.

**CHAPTER 2 (Theodolite Surveying)**

**(2 Marks)**

1. State any four uses of transit theodolite.
2. Define telescope inverted & telescope normal.
3. Define swinging and transiting in theodolite surveying.
4. State face left and face right observations.

**(4 Marks)**

a. State the functions of optical plummet and shifting head in theodolite.

b. Explain method of repetition of horizontal angle measurement.

c. Explain measurement of bearing of line using theodolite.

d. A traverse survey was conducted and following data is received, find missing length and bearing of line DA.

|  |  |  |
| --- | --- | --- |
| **Line** | **Length (m)** | **Bearing** |
| AB | 155.80 | 78° 30' |
| BC | 175.00 | 155° 35' |
| CD | 238.50 | 248° 42' |
| DA | ? | ? |

e. State fundamental axis and lines of theodolite and give relations between them.

f. Calculate consecutive co-ordinates of following traverse:

|  |  |  |
| --- | --- | --- |
| **Line** | **Length (m)** | **WCB** |
| AB | 162 | 120° 30' |
| BC | 142 | 17° 30' |
| CD | 201 | 220° 30' |
| DA | 120 | 333° 20' |

g. Explain the function of lower tangent screw, upper tangent screw, lower clamping screw & upper clamping screw while measuring horizontal angle using theodolite.

h. Explain temporary adjustment of theodolite.

i. Find the length & bearing of line AB. If two co-ordinates A & B as below.

|  |  |
| --- | --- |
| **Point** | **Co-ordinates** |
| A | 970.50, 850.40 |
| B | 1200.40, 602.20 |

j. Following are the latitudes & departures for closed traverse ABCDE. Compute the missing length & WCB of side EA.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Line** | AB | BC | CD | DE | EA |
| **Length** | 194.1 | 201.20 | 164.40 | 172.6 | ? |
| **WCB** | 85030’ | 15030’ | 285030’ | 195030’ | ? |

k. Explain Bowditch Rule as applicable in a theodolite traverse.

l. State errors eliminated by the method of repetition.

**CHAPTER 3 (Tacheometric Surveying)**

**(2 Marks)**

a. State any two objects of tacheometry.

b. State the principle of tacheometry.

c. Explain the functions of anallactic lens.

**(4 Marks)**

a. State any four essential characteristics of tacheometer.

b. Differentiate theodolite & tacheometer. Give any 2 characteristics of tacheometer.

c. Following observation were made by tacheometer:

|  |  |  |
| --- | --- | --- |
| **Distance** | 25m | 50m |
| **Stadia Reading** | 1.900, 1.655, 1.410 | 2.220, 1.725, 1.230 |

d. A tacheometer fitted with anallatic lens was set up at station P & the following readings were obtained on vertically held staff.

|  |  |  |  |
| --- | --- | --- | --- |
| **Inst. Stn** | **Staff Stn.** | **Vertical angle** | **Staff Reading** |
| P | BM | -12042’ | 0.220, 1.000, 1.780 |
| P | Q | +9036’ | 0.415, 1.240, 2.065 |

The RL of BM is 400 m, the constant of tacheometer was 100. Find the horizontal distance PQ & RL of Q.

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