**TED (15/19) - 3012**
(REVISION-2015/19)

A24 - 8891

Reg.No………………
Signature…………….

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2024**

**SURVEYING II**

(Maximum Marks:100) (Time: 3 Hours)

**PART - A**
( Maximum Mark : 10 )

**Marks**

I. Answer **all** the questions in one or two sentences. Each question carries 2 marks.

1. Define the term swinging of telescope.
2. What is meant by latitude of survey line?
3. State Bowditch rule.
4. Define compound curve.
5. What is GIS? ( 5 x 2 = 10 )

**PART - B**
( Maximum Mark: 30 )

II Answer ***any five*** questions from the following. Each question carries 6 marks.

1. Explain temporary adjustment of transit theodolite.
2. What is repetition method? State any 3 errors eliminated by this method.
3. What is meant by omitted measurements? What are the various cases?
4. Derive an expression for the elevation of a point whose base is inaccessible, instrument axes are at same level and instrument station at are at same vertical plane as the object.
5. What are the basic functions involved in an EDM instrument?
6. Explain the elements of a simple curve.
7. Write application of remote sensing in civil engineering. ( 5 x 6 = 30)

*P.T.O*

## PART – C

(Maximum Mark: 60)

(Answer ***one full*** question from each unit. Each full question carries 15 marks.)

### UNIT - I

III a) Define the following:

i) Transiting  ii) Line of collimation

iii) Axis of plate level  iv) Least count (8)

b) Explain the procedure for measuring deflection angle. (7)

**OR**

IV (a) Explain the procedure to find out the horizontal angle by repetition method. (7)

(b) State the important axis of theodolite and their inter relation. (8)

### UNIT – II

V a) The following table gives the corrected consecutive coordinates of closed traverse. Calculate the area of the traverse by independent coordinate method.

| Line | Latitude | Departure |
|---|---|---|
| AB | +108 | +4 |
| BC | +15 | +249 |
| CD | -123 | +4 |
| DA | 0 | -257 |

Assume the independent coordinate of A as (100,100) (10)

b) Explain the procedure to find out the length and bearing of one side is omitted. (5)

**OR**

VI a) Following are the lengths and bearings of traverse ABCD.

| Line | Length (m) | Bearing |
|---|---|---|
| AB | 248 | $30^0$ |
| BC | 320 | $140^0$ |
| CD | 180 | $210^0$ |

Calculate the length and bearing of DA. (8)

b) Define closed traverse. What are the checks commonly adopted in closed traverse? (7)

## UNIT – III

VII a) Derive an expression for the horizontal distance D of a vertical staff held from tacheometer if line of sight is inclined in stadia tacheometry. (7)

b) The following observations were made determining the elevation of the entry tower of a temple. Find RL of A.

| Instrument at | Sight to | Vertical angle | Remarks |
|---|---|---|---|
| B | A | +24º00' | Staff reading on BM(A) = 1.350m<br>Staff reading on BM (B) = 1.225m<br>RL of BM = 150m<br>BC = 30m |
| C | A | +16º30' | |

(8)

**OR**

VIII a) Derive an expression for elevation of a point when line of sight at an angle of depression in stadia tacheometry. (8)

b) A Tacheometer fitted with an anallatic lens was set up at a station A and following readings were obtained on vertically held staff. RL of BM is 100. Calculate the horizontal distance AB and RL of B.

| Station | Staff Station | Vertical angle | Hair reading |
|---|---|---|---|
| A | BM | -2º 18' | 1.500, 1.800, 2.450 |
| | B | +8º 36' | 0.750, 1.500, 2.250 |

(7)

## UNIT – IV

IX a) Explain setting out of simple curve by offset method. (8)

b) What is photogrammetry? Also write its applications. (7)

**OR**

X a) Explain setting out of simple curve by long chord method. (8)

b) What is meant by GPS? Write its applications. (7)

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