**TED (21) - 3011**
(REVISION-2021)

2109230026

Reg.No……
Signature…….

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

**ADVANCED SURVEYING**

[Maximum Marks:75] [Time: 3 Hours]

**PART - A**

**I. Answer all the following questions in one word or one sentence. Each question carries 'one' marks.**

**( 9 x 1 = 9 Marks)**

| | | Module Outcome | Cognitive level |
|---|---|---|---|
| 1 | What is meant by swinging of theodolite? | M1.02 | R |
| 2 | Explain contour interval. | M1.01 | U |
| 3 | The angle which a line makes with the prolongation of preceding line and following line is..... | M2.01 | R |
| 4 | Show the different ways of designating a curve. | M2.04 | U |
| 5 | Expand EDM. | M3.01 | R |
| 6 | Name the reflecting instrument used in total station? | M3.02 | R |
| 7 | Define Nadir point. | M4.04 | R |
| 8 | Expansion of GIS is..... | M4.03 | R |
| 9 | ..... surveying is an art of obtaining accurate measurements by use of photographs for various purposes. | M4.04 | R |

**PART - B**

**II. Answer *any eight* questions from the following. Each question carries 'Three' marks.**

**( 8 x 3 = 24 Marks)**

| | | Module Outcome | Cognitive level |
|---|---|---|---|
| 1 | Define the temporary adjustments of transit theodolite. | M1.03 | U |
| 2 | Write any three uses of contour map. | M1.01 | U |
| 3 | What is the difference between open and closed traverse. | M2.01 | R |
| 4 | The departure and latitude of a line are +80 m and -60 m respectively, find the length and bearing (WCB) of the line. | M2.02 | A |

| | | | |
|---|---|---|---|
| 5 | What are the different sources of error in total station data. | M3.04 | R |
| 6 | Describe the working principle of an EDM. | M3.01 | U |
| 7 | Explain the measurement of distance with total station. | M3.03 | U |
| 8 | Differentiate between areal and terrestrial photogrammetry. | M4.04 | U |
| 9 | List out any 3 applications of GPS. | M4.02 | R |
| 10 | What is Drone survey? | M4.04 | R |

## PART - C

**Answer all the questions from the following. Each question carries 'seven' marks.**

**(6 x 7 = 42 Marks)**

<table>
<tr><th></th><th></th><th>Module Outcome</th><th>Cognitive level</th></tr>
<tr><td>III.</td><td>Explain reiteration method for measurement of horizontal angle. List out any three errors that are eliminated by reiteration method.<br>OR</td><td>M1.03<br><br>M1.01</td><td>U<br><br>U</td></tr>
<tr><td>IV.</td><td>Explain any seven characteristics of contour.</td><td></td><td></td></tr>
<tr><td>V.</td><td>Summarize, what are the fundamental lines of theodolite and explain any three relationships between them?<br>OR</td><td>M1.02<br><br>M1.01</td><td>U<br><br>A</td></tr>
<tr><td>VI.</td><td>The area enclosed by the contours in a lake are as follows:
<table>
<tr><td>contour(m)</td><td>270</td><td>275</td><td>280</td><td>285</td><td>290</td></tr>
<tr><td>Area ($m^2$)</td><td>2050</td><td>8400</td><td>16300</td><td>24600</td><td>31500</td></tr>
</table>
Calculate the volume of water between the contours 270m and 290m by: (i) the trapezoidal formula and (ii) the prismoidal formula.</td><td></td><td></td></tr>
<tr><td>VII.</td><td>Explain the elements and geometrics of simple circular curve with figure.<br>OR</td><td>M2.04<br><br>M2.03</td><td>U<br><br>A</td></tr>
<tr><td>VIII.</td><td>A Tacheometer is set up at an intermediate point on a traverse course PQ and the following observations are made on a vertically held staff.
<table>
<tr><th>Staff Station</th><th>Vertical Angle</th><th>Staff Intercept</th><th>Axial Hair Reading</th></tr>
<tr><td>P</td><td>+90° 30'</td><td>2.250</td><td>2.105</td></tr>
<tr><td>Q</td><td>+60° 00'</td><td>2.055</td><td>1.875</td></tr>
</table>
The instrument is fitted with an analytic lens and the multiplying constant is 100. Compute the length PQ and the reduced level of Q if R.L of P 350.50 m.</td><td></td><td></td></tr>
<tr><td>IX.</td><td>Explain the method of traversing by back bearing method?<br>OR</td><td>M2.01</td><td>U</td></tr>
</table>

<table>
<tr><td>X.</td><td>The following are the corrected consecutive co-ordinates of a closed traverse. Calculate the area of the traverse by independent co-ordinate method.<br><table><tr><td>Side</td><td>Latitude</td><td>Departure</td></tr><tr><td>AB</td><td>+225.5</td><td>+ 120.5</td></tr><tr><td>BC</td><td>-245.0</td><td>+210.0</td></tr><tr><td>CD</td><td>-150.5</td><td>-110.5</td></tr><tr><td>DE</td><td>+170.0</td><td>-220.0</td></tr></table>Take latitude and departure of station A as (+200, + 100) respectively.</td><td>M2.03</td><td>A</td></tr>
<tr><td>XI.</td><td>Explain the working principle and any four components of total station.<br>OR</td><td>M3.03</td><td>U</td></tr>
<tr><td>XII.</td><td>Describe in brief, the steps involved in traversing with total station.</td><td>M3.03</td><td>U</td></tr>
<tr><td>XIII</td><td>Explain three segments in GPS.<br>OR</td><td>M4.02</td><td>U</td></tr>
<tr><td>XIV</td><td>Explain remote sensing and list its four applications.</td><td>M4.01</td><td>U</td></tr>
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