**20CE302**

**Hall Ticket Number:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **II/IV B. Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **February, 2023** | **Civil Engineering** | | |
| **Third Semester** | **Surveying** | | |
| **Time:** Three Hours | | **Maximum: 7**0 Marks | |
| *Answer Question No.1 compulsorily.* | | | (14X1 = 14 Marks) |
| *Answer ONE question from each unit.* | | | (4X14=56 Marks) |
|  | | |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | a) | | | What is fundamental difference between plane surveying and geodetic surveying? | CO1 | L1 |  |
|  | b) | | | When is the chain survey recommended? | CO1 | L2 |  |
|  | c) | | | Define offset. | CO1 | L1 |  |
|  | d) | | | Describe GTS bench marks and permanent bench marks. | CO2 | L2 |  |
|  | e) | | | Define meridian. | CO2 | L1 |  |
|  | f) | | | What is the principle of levelling? | CO2 | L1 |  |
|  | g) | | | What do you mean by triangulation? | CO3 | L1 |  |
|  | h) | | | What is difference between a level surface and a horizontal surface? | CO3 | L4 |  |
|  | i) | | | State the Simpson’s rule. | CO3 | L2 |  |
|  | j) | | | Define prismoid, State the prismoidal formula for measurement of volume. | CO3 | L3 |  |
|  | k) | | | Describe about uses of total station. | CO4 | L2 |  |
|  | l) | | | Define degree of curve. | CO4 | L3 |  |
|  | m) | | | What is EDM in Total station? | CO4 | L2 |  |
|  | n) | | | Write the relation between degree and radius of the curve. | CO4 | L3 |  |
|  | | **Unit - I** | | | | | |
| 2. | a) | | Write about the sources of errors. | | CO1 | L2 | 7M |
|  | b) | | In passing an obstacle in the form of a pond, stations A and D on the main line were taken on the opposite sides of the pond. On the left of AD a line AB, 245 m long was laid down and a second line AC, 295m long was ranged on the right of AD, the points B, D and C being in the same straight line. BD and DC were then chained and found to be 145m and 157m respectively. Find the length of AD. | | CO1 | L3 | 7M |
|  | | **(OR)** | | | | | |
| 3. | a) | | The magnetic bearing of line as observed by the prismatic compass at a survey station is found to be 272o . If the local attraction at this station is known to be 5o E and the declination is 15o West, what is true bearing of the line? | | CO1 | L2 | 7M |
|  | b) | | What is a meridian? Differentiate between true, grid, magnetic and arbitrary meridians. | | CO1 | L3 | 7M |
|  | | **Unit - II** | | | | | |
| 4. | a) | | Explain about the checks in closed traverse. | | CO2 | L2 | 7M |
|  | b) | | Explain about the checks in open traverse. | | CO2 | L3 | 7M |
|  | | **(OR)** | | | | | |
| 5. | a) | | Explain briefly about fly leveling. | | CO2 | L2 | 7M |
|  | b) | | The following readings were taken with a level in sequence as follows: 1.585, 1.315, 2.305, 1.225, 1.325, 1.065, 1.815 and 2.325. The level was shifted after the third and sixth readings. The second change point was a bench mark of elevation 160.375m. Find the reduced levels of the remaining stations. Use rise and fall method. | | CO2 | L4 | 7M |
|  | | **Unit - III** | | | | | |
| 6. | a) | | A series of offsets were taken from a chain line to a curved boundary line at intervals of 15 meters in the following order. 0, 2.65, 3.80, 3.75, 4.65, 3.60, 4.95, 5.85m. Compute the area between the chain line, the curved boundary and the end offsets by, a) average ordinate rule, b) Simpson’s rule. | | CO3 | L4 | 7M |
|  | b) | | A road embankment 40m wide at formation level with side slopes 1 to 1 and with an average height of 15m is constructed with an average gradient of 1 in 40 from contour 150m to 590m. The ground has an average slope of 10 to 1 in direction transverse to the centre line Determine (i) the length of the road (ii) volume of the embankment in cubic meters. | | CO3 | L3 | 7M |
|  | | **(OR)** | | | | | |
| 7. | a) | | Define triangulation. Also explain the classification of triangulation. | | CO3 | L2 | 7M |
|  | b) | | Explain about the classification of signals. | | CO3 | L3 | 7M |
|  | | **Unit - IV** | | | | | |
| 8. | a) | | Derive the expressions for the elements of a simple curve. | | CO4 | L3 | 7M |
|  | b) | | Explain briefly about different types of curves with neat sketches. | | CO4 | L2 | 7M |
|  | | **(OR)** | | | | | |
| 9. | a) | | Explain the principle and working of EDM | | CO4 | L2 | 7M |
|  | b) | | What is a Total station? Write the advantages of total station. | | CO4 | L3 | 7M |

****