

Day and Date:day, .../.../2022

Seat No:

Time:

Max. Marks- 50

Instructions:

- i. All the questions are compulsory.
- ii. Figure to the right indicate full marks.

| BT | CO's | Q. No. | | Marks | | | | | | | | | | | | | | | | | |
|---------------------|---------------|------------|---|---------------------|--------------------------------|--------|----------------|----------------|---------|---|---|-------|--------|------|--------------------------------|--|--|-------|--------|------|------------|
| | | Q.1 | All Questions are compulsory | 20 | | | | | | | | | | | | | | | | | |
| 3 | CO1 | a | <p>The following observations were taken with transit theodolite.</p> <table border="1"> <thead> <tr> <th>Instrum ent station</th> <th>Staff station</th> <th>Target</th> <th>Vertical angle</th> <th>Staff readings</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>O</td> <td>A</td> <td>Lower</td> <td>+4°30'</td> <td>0.95</td> <td rowspan="2">RL of instrument axis = 355.5m</td> </tr> <tr> <td></td> <td></td> <td>Upper</td> <td>+6°30'</td> <td>3.25</td> </tr> </tbody> </table> <p>Calculate the horizontal distance between the instrument station and staff; also find RL of staff station A.</p> | Instrum ent station | Staff station | Target | Vertical angle | Staff readings | Remarks | O | A | Lower | +4°30' | 0.95 | RL of instrument axis = 355.5m | | | Upper | +6°30' | 3.25 | 7 M |
| Instrum ent station | Staff station | Target | Vertical angle | Staff readings | Remarks | | | | | | | | | | | | | | | | |
| O | A | Lower | +4°30' | 0.95 | RL of instrument axis = 355.5m | | | | | | | | | | | | | | | | |
| | | Upper | +6°30' | 3.25 | | | | | | | | | | | | | | | | | |
| 3 | CO2 | b | Two triangulation stations A and B 60 Km apart and have elevations 240 m and 280 m respectively. Find minimum height of signal required at B so that line of sight may not pass near the ground then 2 meters. The intervening ground may be assumed to have uniform elevation of 200 m. | 7 M | | | | | | | | | | | | | | | | | |
| 3 | CO3 | c | Calculate the maximum number of photographs required to cover a fairly level area with the following data: scale of photograph is 1:10,000, area is 100Sq.Km. Longitudinal overlap is 60%, Side lap is 30%, size of photograph is 20 cm x 20 cm. | 6 M | | | | | | | | | | | | | | | | | |
| | | Q.2 | All Questions are compulsory | 10 | | | | | | | | | | | | | | | | | |
| 2 | CO4 | a | Explain briefly raster and vector data. | 4 | | | | | | | | | | | | | | | | | |
| 2 | CO4 | b | Write a note on various components of GIS. | 6 | | | | | | | | | | | | | | | | | |
| | | Q.3 | All Questions are compulsory | 10 | | | | | | | | | | | | | | | | | |
| 2 | CO4 | a | Explain active and passive remote sensing with neat sketch. | 3 | | | | | | | | | | | | | | | | | |
| 2 | CO4 | b | Explain electromagnetic energy and its interaction with mater. | 7 | | | | | | | | | | | | | | | | | |
| | | Q.4 | Attempt any two out of three questions | 10 | | | | | | | | | | | | | | | | | |
| 2 | CO4 | a | What is GNSS? Enlist four applications in Civil Engineering field. | 5 | | | | | | | | | | | | | | | | | |
| 2 | CO4 | b | Describe in brief the segments in GNSS. | 5 | | | | | | | | | | | | | | | | | |
| 2 | CO4 | C | How GPS works? Explain with neat sketch. | 5 | | | | | | | | | | | | | | | | | |