PAPER ID-311569

Subject Code: BCE302

Roll No: | | | | | | | | | | | | | |

**BTECH**
**(SEM III) THEORY EXAMINATION 2023-24**
**SURVEYING AND GEOMATICS**

**TIME: 3HRS** **M.MARKS: 70**

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

## SECTION A

**1. Attempt *all* questions in brief.** **2 x 7 = 14**

| | |
|---|---|
| a. | Write the uses of plane survey. |
| b. | How the subject of surveying is classified based on instruments or methods adopted? |
| c. | Draw sketch of compound curve. |
| d. | What do you mean by the shift of transition curve? |
| e. | Write the benefits of using EDM in surveying. |
| f. | Which two branches divided in terrestrial photogrammetry? |
| g. | Write the principle of remote sensing. |

## SECTION B

**2. Attempt any *three* of the following:** **7 x 3 = 21**

| | |
|---|---|
| a. | An old plan of a field was made to a scale of 1 cm= 15m. The area of the plan was measured by a planimeter and was found to be 115.5 cm2. It was later that the plan had shrunk so that a line originally 10 cm long now measure 9.75 cm only. There was also a note that the 30 m chain used was 5 cm too short. Find the true area of the field. |
| b. | What do you mean by the shift of transition curve? How is the length of transition curve selected. |
| c. | A EDM slope distance AB is determined to be 672.243m. The EDM instruments is 1.815 m above station A and the prism is 1.195 m above station B. The EDM instrument is mounted on a theodolite whose optical center is 1.700 m above the station. The theodolite was used to measure the vertical angle to a target on the prism pole, which is measured as 5º 45' 34" . The target pole is 1.800 m above station B. Compute the horizontal distance AB and the elevation of station B, If the elevation of station A is 345.472 m. |
| d. | Obtain an expression of elevation of a point by photographic measurement. |
| e. | Explain with sketch different types of remote sensing. |

## SECTION C

**3. Attempt any *one* part of the following:** **7 x 1 = 7**

| | |
|---|---|
| (a) | Describe the merits and demerits of rise and fall method. |
| (b) | Draw contour lines for the following characteristics features: (i) A pond (ii) Overhanging cliff (iii) Depression |

**4. Attempt any *one* part of the following:** **7 x 1 = 7**

| | |
|---|---|
| (a) | Two straight intersect at a deflection angle of 80º. They are to be connected by a circular curve of radius 400 determine the length of chord and also determine the offset from the long chord to set out the curve. |

PAPER ID-311569

Roll No: | | | | | | | | | | | | | |

**BTECH**
**(SEM III) THEORY EXAMINATION 2023-24**
**SURVEYING AND GEOMATICS**

**TIME: 3HRS** **M.MARKS: 70**

| | |
|---|---|
| (b) | Describe the method of setting out a simple curve by perpendicular offset from the tangent. |

**5. Attempt any *one* part of the following: 7 x 1 = 7**

| | |
|---|---|
| (a) | Write objective of using Total Station. With neat sketch show the parts of total station. |
| (b) | List out the key elements needed for the benefit calculation of GIS. |

**6. Attempt any *one* part of the following: 7 x 1 = 7**

| | |
|---|---|
| (a) | Find the parallax difference between the top and bottom of a building having height, given that the mean base length in the photographs is 98.5 mm, the flying height during exposure is 1.500m, and the focal length of the camera lens is 250 mm. |
| (b) | What do you understand by vectorization? Describe advanced technologies for primary data acquisition. |

**7. Attempt any *one* part of the following: 7 x 1 = 7**

| | |
|---|---|
| (a) | Write short notes on the IR region of the electromagnetic spectrum. |
| (b) | Write the short notes on the following: (i) Range finders (ii) DIAL |