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Total Number of Pages : 02

B.Tech  
PCI3I102

3<sup>rd</sup> Semester Back Examination 2019-20  
SURVEY

BRANCH : CIVIL

Max Marks : 100

Time : 3 Hours

Q.CODE : HB678

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part-I

Q1 Only Short Answer Type Questions (Answer All-10) (2 x 10)

- State well-conditioned triangle.
- Define base line of survey.
- How is a station marked on the ground?
- Differentiate between isogonic and agonic lines.
- Define bench mark.
- Define reduced level.
- What is a contour line?
- State the difference between face-left and face right observations.
- Mention the use of total station.
- Define horizontal equivalent.

Part-II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- What is meant by chain surveying? Explain the principle on which it is based.
- State the precautions would you take to eliminate the errors in chain surveying.
- The magnetic bearing of a line CD is S 30° 15' W. Find its true bearing, if the declination is 10° 15' E.
- The bearings of the lines AB, BC, CD and DE, are 45° 30', 120° 15', 200° 30' and 280° 45', respectively. Find angles B, C and D.
- State local attraction. How it is detected and adjusted?
- Determine the visible horizon distance from a tower of 50 m high. Also determine the dip of the horizon, assuming the radius of the earth to be 6370 km.
- Illustrate the common sources of error in levelling.
- When is reciprocal leveling done? Describe the method along with sketch.
- The distance between two stations was 1,200 m when measured with a 20 m chain. The same distance when measured with 30 m chain was found to be 1,195 m. If the 20 m chain was 0.05 m too long, what was the error in the 30 m chain?
- Mention the different characteristics of contour line.
- Describe the process of measuring the vertical angle by using theodolite.
- Write briefly about the applications of GIS.

Part-III

Q3 Only Long Answer Type Questions (Answer Any Two out of Four) (16)

A 20 m steel tape was standardised at a temperature of 20° C and under a pull of 15 kg. The tape was used in catenary at temperature of 30° C and under a pull of 10 kg. The cross-sectional area of the tape is 0.02 cm<sup>2</sup>, and its total weight is 400 g. The Young's modulus and coefficient of linear expansion of steel are 2.1 x 10<sup>6</sup> kg/cm<sup>2</sup> and 11 x 10<sup>-6</sup> per °C respectively. Find the correct horizontal distance.

**Q4** The following consecutive readings were taken with a levelling instrument at intervals of 20m. **(16)**  
2.375, 1.730, 0.615, 3.450, 2.835, 2.070, 1.835, 0.985, 0.435, 1.630, 2.255 and 3.630 m.

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The instrument was shifted after the fourth and eighth readings. The last reading was taken on a BM of RL 110.200 m. Find the RLs of all the points.

**Q5** What is temporary adjustment of a theodolite? Describe the process of such adjustment. **(16)**

**Q6** Define EDM. What are the different types of EDM equipment used? Give a detailed description of each. **(16)**