Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech**

PCI3I102

3rd 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)**

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

Part-II

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

a) What is meant by chain surveying? Explain the principle on which it is based.
b) State the precautions would you take to eliminate the errors in chain surveying.
c) The magnetic bearing of a line CD is S 30^0 15' W. Find its true bearing, if the declination is 10^0 15' E.
d) The bearings of the lines AB, BC, CD and DE, are 45^0 30', 120^0 15', 200^0 30' and 280^0 45', respectively. Find angles B, C and D.
e) State local attraction. How it is detected and adjusted?
f) 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.
g) Illustrate the common sources of error in levelling.
h) When is reciprocal leveling done? Describe the method along with sketch.
i) 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?
j) Mention the different characteristics of contour line.
k) Describe the process of measuring the vertical angle by using theodolite.
l) Write briefly about the applications of GIS.

Part-III

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

Q3 A 20 m steel tape was standardised at a temperature of 20^0 C and under a pull of 15 kg. The tape was used in catenary at temperature of 30^0 C and under a pull of 10 kg. The cross-sectional area of the tape is 0.02 cm^2, and its total weight is 400 g. The Young's modulus and coefficient of linear expansion of steel are 2.1 x 10^6 kg/cm^2 and 11 x 10^{-6} per ^{0}C respectively. Find the correct horizontal distance. **(16)**

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.
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)**