PAPER ID-411845

Subject Code: NCE303

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

BTECH
(SEM III) THEORY EXAMINATION 2021-22
SURVEYING -I

Time: 3 Hours ***Total Marks: 100***

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

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a.	State the difference between precision and accuracy
b.	What do you understand by shrinkage factor?
c.	What is meant by face left & face right observation?
d.	What is local attraction?
e.	State the formula for Latitude & departure of a line?
f.	What is meant by closing error in a traverse?
g.	What is magnetic declination?
h.	What is a change point?
i.	What are different kinds of benchmark?
j.	Define Ranging.

SECTION B

2. Attempt any *three* of the following: 10x3=30

a.	Explain in detail the different classifications of survey
b.	Describe the function of different types of instruments used for chaining.
c.	State the process of contouring and state the characteristics and methods of locating the contours.
d.	What do you understand by the term levelling? Describe the process involved in temporary adjustment of levelling instruments.
e.	Describe the various elements of a simple circular curve using a neat sketch and provide the expression to compute length of curve from it.

SECTION C

3. Attempt any *one* part of the following: 10x1=10

a.	What is an error? Explain in detail the various sources of error and the different kinds of errors.
b.	The area of the plan of an old survey plotted to a scale of 10 meters to 1 cm measures now as 100.2 sq. cm as found by planimeter. The plan is found to have shrunk so that a line originally 10 cm long now measures 9.7 cm only. Find the (i) shrunk scale (ii) true area of survey.

4. Attempt any *one* part of the following: 10x1=10

a.	Explain the process of recording horizontal and vertical angles using a theodolite.
b.	The length of a line measured with a 20 meter chain was found to be 250 meters. Calculate the length of a line if the chain was 10 cm too long.

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5. Attempt any *one* part of the following: 10x1=10

a.	The following staff readings were observed successively with a level, the instrument having been shifted after third, sixth and eight readings: 2.228; 1.606; 0.988; 2.090; 2.864; 1.262; 0.602; 1.982; 1.044; 2.684 m. Calculate the R.L. of the points using Height of instrument method if the first reading was taken with a staff held on a benchmark of 450 m
b.	Find the correction for curvature and for refraction for a distance of (a) 1200 m (ii) 2.48 km.

6. Attempt any *one* part of the following: 10x1=10

a.	Explain the terms latitude and departure. Also discuss the co-ordinate system used for latitude and departure.
b.	Define the term closing error and obtain the expressions for magnitude and direction of closing error.

7. Attempt any *one* part of the following: 10x1=10

a.	Define the term vertical curve and explain its various types with help of neat sketch.
b.	Describe the Rankine's method of setting out simple circular curve and obtain the expression for deflection angles.