Roll No. : .....

Total No. of Questions : **10**] [Total No. of Printed Pages : **3**

SB–145

B.C.A. (Part–III) DUE of B.C.A. Part–I
Suppl. Examination, 2021

FUNDAMENTAL MATHEMATICS FOR COMPUTER APPLICATION

(For Old Students Only)

Paper - BCA-101

*Time : **1½** Hours*] [*Maximum Marks : **50***

Note :– Attempt *five* questions in all, selecting *one* question from each Unit. All questions carry equal marks.

Unit–I

1. (a) Find the determinant of the matrix :

$$A = \begin{bmatrix} 2 & -3 \\ 4 & 5 \end{bmatrix}$$

(b) Explain orthogonal matrix.

2. (a) Using elementary row transformation, find inverse of matrix :

$$A = \begin{bmatrix} 6 & 5 \\ 5 & 4 \end{bmatrix}$$

(b) Explain Cramer's rule.

Unit–II

3. (a) Differentiate X^5 with respect of X.

   (b) Explain Maxima and Minima.

4. (a) Find all points of discontinuity of the function f defined by :

$$f(x) = (x) - | x - 1 |$$

   (b) Explain differentiability.

Unit–III

5. (a) Find the integral :

$$\int (5x^2 - 8x + 5)\, dx$$

   (b) Explain integration by partial fraction.

6. (a) Evaluate the following definite integral :

$$\int_1^9 (x^{3/2} + 2x + 3)\, dx$$

   (b) Explain theory of integral.

Unit–IV

7. (a) What equation describe all the points (x, y) in a coordinate plane that are five units away from the point (–3, 6) ?

   (b) Explain Rectangular co-ordinates in the space.

8. (a) Find the equation of the circle that passes through the points A = (2, 1) and B = (–2, 3) and has its center on the line $x + y + 4 = 0$.

   (b) Explain Elementary Co-ordinate Geometry.

Unit–V

9. (a) How to find the resolution of Vectors ?

   (b) If three vectors A, B and C have magnitudes 5, 12 and 13 and $\vec{A} + \vec{B} = \vec{C}$, then what is the angle between B and C.

10. (a) Explain the difference between scalar and vector.

    (b) Find the equation of the plane with normal vector (1, 2, 5) which passes through the point (–1, 3, 4).