

# Half Yearly Examination-2020-21

## B.C.A. Part-I, II, III

### PAPER FIRST: BRIDGE COURSE (If applicable)

[Time- 3 hours]

[Maximum Marks : 50]

**Note:** Attempt any two parts from each question, All questions carry equal marks.

#### UNIT-1

1.(a) Break The Following into Partial Fraction :  $\frac{1}{(x-2)(x-3)}$

(b) Evaluate the Determinant :  $A = \begin{vmatrix} 1 & 2 & 3 \\ 2 & 4 & 4 \\ 3 & 6 & 5 \end{vmatrix}$

(c) If  $A = \begin{bmatrix} 3 & -2 \\ 4 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 2 & 4 \\ 5 & 7 \end{bmatrix}$  then find  $AB$  and  $(AB)^{-1}$ .

#### UNIT- 2

2.(a) If  ${}^{12}P_{r-1} : {}^{12}P_r = 1 : 6$ , then find the value of  $r$ .

(b) How many Permutations can be formed by taking all the letters of the word "MATHEMATICS" Altogether? In how many of those words, the vowels are side by side?

(c) if  ${}^{10}C_n - {}^{10}C_{n+4}$  then find the value of  $n$ .

#### UNIT- 3

3.(a) Find the value of  $\tan 105^\circ$ .

(b) Find the value of :  $\sin 30^\circ + \cos 60^\circ + \tan 45^\circ + \tan 135^\circ$ .

(c) If  $\tan \theta = \frac{4}{5}$ , then evaluate  $\cos 2\theta$  and  $\sin 2\theta$ .

#### UNIT- 4

4. (a) Find the equation of line passing through the point  $(-6, 10)$  and perpendicular to the line  $7x + 8y = 5$ .

(b) Find the angle between two lines  $y - 2x = 9$  and  $x + 2y = -7$ .

(c) Find the equation of the hyperbola whose vertex is  $(0, \pm 5)$  and eccentricity is  $\frac{3}{2}$ .

#### UNIT- 5

5.(a) Find the mean of the data :

13, 18, 40, 21, 47, 35, 29

(b) Find the median from the following table :

Wages ( in Ru.)	5	10	15	20	25	30
No. of labour	4	6	8	7	3	2

(c) Find the median of the data :

83, 54, 78, 64, 90, 59, 67, 72, 70, 73.

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