

ED–2857

B. C. A. (Part I/II) EXAMINATION, 2021

(Only for Non-Mathematical Students)

BRIDGE COURSE

Time : Three Hours

Maximum Marks : 50

Minimum Pass Marks : 17

Note : Attempt any two part from each Unit. All questions carry equal marks.

Unit—I

1. (a) Resolve into partial fraction :

$$\frac{1}{x-1 \quad x+1}$$

- (b) The first term of an A. P. is 2 and common difference is 4. Find the sum of its 40 terms.

- (c) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -1 & 3 \\ -1 & 0 & 2 \end{bmatrix}$, then find value of $A + B$.

Unit—II

2. (a) Find the value of n such that :

$$n_{p_5} = 42 n_{p_3}$$

P. T. O.

- (b) For all $n \geq 1$ prove that :

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

- (c) Expand the expression :

$$(2x - 3)^6$$

Unit—III

3. (a) Find the value of $\sin 765^\circ$.

- (b) Prove that :

$$\frac{1 + \cos 2\theta}{\sin 2\theta} = \cot \theta$$

- (c) Prove that :

$$\tan^{-1} \frac{1}{2} + \tan^{-1} \frac{1}{3} = \frac{\pi}{4}$$

Unit—IV

4. (a) Find the equation of the line through $(-2, 3)$ with slope -4 .

- (b) Find the angle between the lines :

$$y - \sqrt{3}x - 5 = 0 \text{ and } \sqrt{3}y - x + 6 = 0$$

- (c) Find the equation of the parabola with vertex at $(0, 0)$ and focus at $(0, 2)$.

Unit—V

5. (a) Find the mean deviation about the mean for data :

$$6, 7, 10, 12, 13, 4, 8, 12$$

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(b) Find the Median for the data :

Class	Frequency
0—10	6
10—20	7
20—30	15
30—40	16
40—50	4
50—60	2

(c) Find the standard deviation for given data :

x_i	F_i
3	7
8	10
13	15
18	10
23	6