# 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 :

$$1^2 + 2^2 + 3^2 + ..... + n^2 = \frac{n \quad n+1 \quad 2n+1}{6}$$

(c) Expand the expression :

$$2x - 3^{\ 6}$$

**Unit—III**

3. (a) Find the value of sin 765°.

(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

(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 |