

**Term End Assignment 2020**

**Class -: BCA I/II/III**

**(Only for Non-Mathematical Students)**

**BRIDGE COURSE**

*Time : Three Hours ]*

*[ Maximum Marks : 50*

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

**Unit-I**

1. (a) Find 50th term of the arithmetic progression 2, 7, 12, 17, .....

(b) Evaluate :

$$\begin{vmatrix} 1 & 2 & -3 \\ 0 & 5 & 7 \\ 8 & 7 & 10 \end{vmatrix}$$

(c) Find inverse of the matrix :

$$A = \begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

**Unit-II**

2. (a) Prove that :

$${}^n C_{r-1} + {}^n C_r = {}^{n+1} C_r$$

(b) Prove by the method of induction that :

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

(c) Prove that :

$${}^n C_0 + {}^n C_1 + \dots + {}^n C_n = 2^n$$

### Unit—III

3. (a) Prove that :

$$\sin 89^\circ \cdot \cos 1^\circ + \cos 89^\circ \cdot \sin 1^\circ = 1$$

(b) A man is standing between two houses such that he finds angle of elevation  $30^\circ$  of the top of the house which is 5 metre distant from him while that of the other house which is 10 metre distant from him is  $45^\circ$ . Find heights of both houses.

(c) Prove that :

$$\cos^2 \theta - \sin^2 \theta = 1 - 2 \sin^2 \theta = 2 \cos^2 \theta - 1$$

### Unit—IV

4. (a) Find the equation of the curve in Cartesian co-ordinates whose parametric equation is :

$$x = a \cos^3 t, y = a \sin^3 t$$

(b) Find equation of the straight line passing through the points  $(0, 0)$  and  $(1, 2)$ .

(c) Find the major axis and minor axis of the ellipse

$$\frac{x^2}{9} + \frac{y^2}{4} = 1.$$

## Unit—V

5. (a) Find H. M. of the following distribution :

Class Interval	Frequency
2—4	20
4—6	40
6—8	30
8—10	10

- (b) For the following distribution find mean deviation from median :

$x$	$f$
6	4
12	7
18	9
24	18
30	15
36	10
42	5

- (c) Find standard deviation of the set of numbers :

3, 4, 9, 11, 13, 6, 8 and 10