Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 07

BCA (Sem.–4)

MATHEMATICS-II

Subject Code : BC-301

M.Code : 10022

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. Write briefly :

(a) Define Square matrix.

(b) Find the rank of $\begin{bmatrix} 1 & 2 \\ 4 & 8 \end{bmatrix}$.

(c) Find the determinant of $\begin{bmatrix} 2 & 4 \\ 3 & 5 \end{bmatrix}$.

(d) State Measures of Central tendency.

(e) Define Skewness.

(f) Differentiate: $sinx^2$.

(g) Differentiate : $logtanx$.

(h) Integrate: $x^{3/2}$

(i) Integrate: e^x.

(j) State Trapezoidal Rule.

SECTION-B

2. Solve: $5x + 3y + 7z = 4$; $3x + 26y + 2z = 9$; $7x + 2y + 10z = 5$.

3. Find the missing frequency from the following data when the arithmetic mean is 34 marks and then find the median.

Marks	0–10	10–20	20–30	30–40	40–50	50–60
No. of Student	5	15	20	----	20	10

4. *If* $A = \begin{bmatrix} 2 & 1 & 0 \\ 3 & 2 & 1 \\ 1 & 0 & 1 \end{bmatrix}$ *and* $B \begin{bmatrix} 2 & 3 & 4 \\ 0 & 1 & 2 \\ 1 & 0 & 5 \end{bmatrix}$ *Find AB and BA*.

5. Integrate by parts : $\int x \sin x \, dx$.

6. Find the second derivative of $x^2 \log 3x$.

7. Compute by Simpson's rule an approximate value of $\int_0^3 x^4 \, dx$ by taking seven equidistant ordinates. Compare it with the exact value and the value obtained by using the Trapezoidal rule.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.