

JK LAKSHMIPAT UNIVERSITY, JAIPUR
INSTITUTE OF MANAGEMENT

End Term, December 2025

BBA, Backlog, 2025-26

ID1115: Business Mathematics & Statistics

Time: 2 hours, Max. Marks: 30

Roll No.:

Instructions to students:

1. Read the entire question paper before beginning.
2. Write your **Roll No.** and **Name** clearly on the question paper before starting.
3. **Any type of calculator** is allowed; but no other digital devices are permitted.
4. Clearly indicate the question number you have chosen.
5. *Note:* Irrelevant or redundant answers will be penalized.

1. (7 marks) A logistics company ships goods from its warehouse to three distribution centers—Delhi, Mumbai, and Chennai. The matrices A and B give the number of packages shipped via Air and Road transport, respectively, during the month of July.

$$A = \begin{bmatrix} \text{Delhi} & \text{Mumbai} & \text{Chennai} \\ 100 & 80 & 120 \end{bmatrix}$$

and

$$B = \begin{bmatrix} \text{Delhi} & \text{Mumbai} & \text{Chennai} \\ 200 & 150 & 100 \end{bmatrix}$$

The shipping costs (in rupees per package) for Air and Road transport to each city are given, respectively, by the matrices

$$C = \begin{matrix} & \begin{matrix} \text{Delhi} \\ \text{Mumbai} \\ \text{Chennai} \end{matrix} & \begin{bmatrix} 30 \\ 25 \\ 20 \end{bmatrix} \end{matrix} \quad \text{and} \quad D = \begin{matrix} & \begin{matrix} \text{Delhi} \\ \text{Mumbai} \\ \text{Chennai} \end{matrix} & \begin{bmatrix} 10 \\ 12 \\ 8 \end{bmatrix} \end{matrix}$$

Compute the matrix $AC + BD$ and explain what it represents.

(CO 3,4)

2. (4 marks) Solve for u , x , y , and z in the matrix equation below.

(CO 1)

$$\begin{bmatrix} 2 & 3 \\ 8 & 5 \\ x & 16 \end{bmatrix} - 2 \begin{bmatrix} y-2 & 3 \\ 4 & 1 \\ 3 & 2z+1 \end{bmatrix} = 3 \begin{bmatrix} -2 & -u \\ 0 & 1 \\ 1 & 2 \end{bmatrix}$$

3. (7 marks) You wish to purchase a smartphone from an e-commerce website. The price is ₹6,000. If the interest rate is 18% per annum compounded monthly, what will the 4-month EMI come out to be? What is the total interest amount you paid?

(CO 2)

Daily Supply (y)	Unit Price (x)
47	16
39	6
35	6
44	8
34	5
20	3
15	1
30	3

4. (6 marks) The above sample data represent the daily supply (y in thousands of units) and the unit price (x in rupees). Find the sample covariance and correlation coefficient. Also, give the interpretation for both. *(CO 3, 4)*
5. (6 marks) Random variable x has the probability function $f(x) = x/5$, for $x = 1, 2$ or 3 . What is the expected value of x ? *(CO 2)*
-