

B.B.A. Semester - 2 (NEP-2020) Examination

MARCH/APRIL-2026

Business Mathematics (Multidisciplinary Course)

Time: 2:00 Hours

Marks: 50

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

- Que.1 Define the following matrices: (10)
- (1) Zero matrix (2) Column matrix (3) Square matrix
(4) Identity matrix (5) Skew Symmetric matrix
- OR
- Que.1 (A) If $A = \begin{bmatrix} 4 & 5 \\ 6 & -2 \\ 3 & 7 \end{bmatrix}$; $B = \begin{bmatrix} 2 & 5 & 7 \\ 8 & 4 & -3 \end{bmatrix}$ Find AB and BA. (05)
- (B) Find A^{-1} and verify that $AA^{-1} = I$. (05)
- $A = \begin{bmatrix} 6 & 3 \\ 4 & 5 \end{bmatrix}$
- Que.2 (A) Find the value of $\begin{vmatrix} 2 & 3 & 4 \\ 2 & 7 & -7 \\ 4 & 9 & 1 \end{vmatrix}$ (05)
- (B) Find the value of $\begin{vmatrix} a+b & a-b \\ a-b & a+b \end{vmatrix}$ (05)
- OR
- Que.2 Solve the equations : (use Cramer's rule) (10)
- $2x - 3y + z = 3$, $x + y - 2z = -1$, $3x - 2y + 5z = 8$
- Que.3 Find the value (10)
- (1) $\lim_{x \rightarrow 5} \frac{x^4 - 16}{x^3 - 8}$
- (2) $\lim_{x \rightarrow 7} \frac{x^2 + 2x - 63}{x^2 - 10x + 21}$
- (3) $\lim_{x \rightarrow 1} \frac{x^2 + x - 2}{x^2 + 2x - 3}$
- (4) $\lim_{x \rightarrow 4} \frac{\sqrt{x-2}}{x-4}$
- OR
- Que.3 (A) State the rules of limit. (05)
- (B) Explain the meanings of (05)
- (1) $x \rightarrow 0$ (2) $x \rightarrow 3$
- Que.4 (A) State the rules of differentiation. (05)
- (B) Find $\frac{dy}{dx}$ if $xy + x + y - 2 = 0$. (05)
- OR
- Que.4 (A) $y = x^2 + e^x + e^e$ find $\frac{dy}{dx}$. (05)
- (B) $y = \frac{(x-2)(3x+4)}{(x+5)(x+7)}$, find $\frac{dy}{dx}$. (05)
- Que.5 (A) Rs. 10,000 is deposited in a bank at 8% simple interest. Find the balance after 3 years. (05)
- (B) Find the present value of Rs. 16,047 to be received after 4 years at the interest rate of 12% compounded quarterly. (05)
- OR
- Que.5 (A) Explain : Compound Interest. (05)
- (B) Write short note on: Effective rate of interest. (05)
