



UNIVERSITY OF NORTH BENGAL
BBA Honours 2nd Semester Examination, 2021

CC3-BBA (202)

BUSINESS MATHEMATICS

Full Marks: 60

ASSIGNMENT

*The figures in the margin indicate full marks.
All symbols are of usual significance.*

Answer any two of the following assignments

30×2 = 60

1. (a) Solve these three equations using Matrix inversion method: 10

$$\begin{aligned} 5x - 6y - 7z &= 7 \\ 6x - 4y + 10z &= -34 \\ 2x + 4y - 3z &= 29 \end{aligned}$$
- (b) Solve the Matrix equation: 10
 $2X + 4A = 3BA$, where

$$A = \begin{bmatrix} 0 & -1 \\ 2 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$
- (c) Find the indicated Integral: 10

$$y = \int \frac{x^2 + 3x - 2}{\sqrt{x}} dx$$
2. (a) Find the derivative of function f given by: 10
 $y = (x+1)(x^2 + 3)$, find $\frac{dy}{dx}$ with the help of product rule.
- (b) The cost function of a firm is given as $C = 120 + 4Q^3 - 90Q^2 + 1000Q$; where C denotes total cost and Q denotes the size of production. You are required to find the output level where average cost is minimized. 10
- (c) Given $A = \begin{bmatrix} 3 & 1 \\ 0 & 2 \end{bmatrix}$, then show that $A^3 + A^2 - 24A + 36I = 0$, 10
 where, ' I ' is an Identity Matrix
3. (a) If $x^m \cdot x^n = (x+y)^{m+n}$, then show that $\frac{dy}{dx} = \frac{y}{x}$ 10
- (b) Show that the maximum value of $x^3 + \frac{1}{x^3}$ is less than its minimum value. 10
- (c) A person wants to invest Rs. 1,00,000 for 7 years. He may invest the amount at 10% p.a. compounded quarterly or he may invest it at 10.5% p.a. in another scheme. Which investment will give him better return? 10

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