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Reg. No. | | | | | | | | |

I Semester B.Com.(Honours) Degree Examination, August - 2021

COMMERCE

Mathematical Applications in Business

(CBCS Semester Scheme New 2019-20 Onwards)

Paper: 1.6

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

*Answers should be written in **English** only.*

PART - A

Answer any **Five** questions . Each question carries **2** marks. **(5×2=10)**

1. a) What is Diagonal Matrix?

b) Give the formula to calculate simple interest?

c) What is quadratic equation.

d) Define Calculus

e) If $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, find 2A

f) Give the meaning of Range.

g) Solve the equation $Z(x-3) = 9 + 3(x-9)$

PART - B

Answer any **Three** questions. Each question carries **5** marks. **(3×5=15)**

2. Solve the equations $4x + y = 24$ and $3x - 5y = 8$, using Crammer's Rule.

3. Solve the equation using formula method $6x^2 + 5x - 4 = 0$

4. Find x & y if $\begin{bmatrix} x+8y & 4 \\ 2 & 6 \end{bmatrix} = \begin{bmatrix} 17 & 4 \\ 3 & 4x+y \end{bmatrix}$

5. Find the simple interest on Rs. 200 for 3 years and 26 week at the rate of 12% p.a

[P.T.O.

PART - C

Answer any **Three** questions. Each question carries **15** marks. **(3×15=45)**

6. a) Find AB and BA, if $A = \begin{bmatrix} 3 & 2 & 0 \\ 0 & 3 & 4 \\ 1 & 0 & 2 \end{bmatrix}, B = \begin{bmatrix} 4 & 5 & 2 \\ 1 & 2 & 3 \\ 3 & 0 & 1 \end{bmatrix}$

b) If $A = \begin{bmatrix} 2 & 4 & 4 \\ 4 & 2 & 4 \\ 4 & 4 & 2 \end{bmatrix}$ prove that $A^2 - 8A - 20I = 0$

7. Solve using elimination method.

a) $5x + 2y = 8$
$9x - 5y = 23$

b) $3x + 4y = 2$
$5x + 7y = 0$

8. Find the Nominal and effective rates of interest in each of the following cases:

i) Rs. 2000 lent at 12% p.a, interest payable half yearly.

ii) Rs. 1500 lent at 8% p.a. interest payable quarterly.

iii) Rs. 10,000 invested at 12% p.a interest payable yearly.

9. If the total cost function $C(x)$ of a firm is given by $C(x) = x^3 - 3x + 7$. Then find the average cost and marginal cost when $x = 6$ units.
