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

I Semester B.Com. (Honour's) Degree Examination, April - 2022

COMMERCE

Mathematical applications in Business

(CBCS Scheme Repeater 2019-2020)

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. Find the compound interest on Rs. 1000 for 3 yr. at 5% P.A.

   b. What is Unit Matrix?

   c. Give the meaning of Quadratic equation.

   d. Find x, $(5x-9)-(2x-3)=27$

   e. If $A=\begin{bmatrix}1 & 2\\ 2 & 4\end{bmatrix}$ $B=\begin{bmatrix}3 & 1\\ 4 & 2\end{bmatrix}$ Find A+B

   f. Give the formula to calculate Quadratic equation.

PART - B

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

2. Find the simple interest on Rs. 5000 for 3 years and 26 week at the rate of 10% p.a.

3. Find the inverse of the matrix $A=\begin{bmatrix}2 & -1\\ 3 & -2\end{bmatrix}$

[P.T.O.

4. 9 tables and 8 chairs cost Rs. 5280. 8 tables and 12 chairs cost Rs. 5280. Determine the cost of each table and each chair.

5. Solve x, $(5x+1)(x+3)=3(x-1)$

PART - C

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

6. a) If $A=\begin{bmatrix}1 & 2 & 2\\ 2 & 1 & 2\\ 2 & 2 & 1\end{bmatrix}$ show that $A^2-4A-5I=0$

   b) If $A=\begin{bmatrix}0 & -2\\ -2 & 0\end{bmatrix}$ Find $A^2-4I=0$

7. Find the Nominal & effective rates of interest in each of the following cases.
   a) Rs. 5000 Lent at 8% p.a. interest Payable half yearly.
   b) Rs. 3000 Lent at 9% p.a. interest payable half yearly.
   c) Rs. 2000 lent at 12% p.a. interest payable quarterly.
   d) Rs. 20,000 invested at 15% p.a. interest payable yearly.

8. If the total cost function C(x) of a firm is given by $C(x)=x^3-6x+14$. The find the average cost and marginal cost when x = 12 units.

9. Solve using substitution method.

   a) $2x-y=5$
      $x-4y+1$

   b) $5x+3y=7$
      $3x-2y=8$