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BCH–402

BACHELOR OF COMMERCE

(FOURTH SEMESTER)

MID SEMESTER EXAMINATION, 2021

BUSINESS MATHEMATICS

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) Find the inverse of the matrix :

10 Marks (CO1)

$$A = \begin{bmatrix} 1 & 2 & 7 \\ 7 & 9 & 8 \\ 0 & 0 & 7 \end{bmatrix}.$$

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OR

(b) Give any *five* properties of determinant with example and hence : 10 Marks (CO1)

Solve $\begin{vmatrix} 100 & 878 & 54 & 465 \\ 0.0 & 100 & 4545 & 3546 \\ 0.0 & 0.0 & 200 & 4566 \\ 0.0 & 0.0 & 0.0 & 50 \end{vmatrix}$

2. (a) Define following : 10 Marks (CO2)

(i) Define any *four* types of function with suitable example.

(ii) Continuity of function with example

(iii) Limit of a function

OR

(b) A ball is thrown in the air. Its height at any time t is given by : $y = 3 + 14t - 5t^2$. What is its maximum height ?

10 Marks (CO2)

3. (a) Find the differentiation of the following functions $y = x^2.e^x + \log(x)$.

10 Marks (CO2)

OR

(b) Prove that the following function is continuous at $x = 0$; $f(x) = x^2 + 3x + 6$.

10 Marks (CO2)

4. (a) Find the inverse of the matrix

$$A = \begin{bmatrix} 1 & 2 & 2 \\ 5 & 0 & 3 \\ 0 & 0 & 7 \end{bmatrix}.$$ 10 Marks (CO1)

OR

(b) (i) What is the marginal analysis ?

(ii) Define the mathematical function.

10 Marks (CO1)

5. (a) (i) Define the continuity of a function.

(ii) Define the derivative of a function.

10 Marks (CO1)

OR

(b) Construct a 3 × 2 matrix whose elements are given by $a_{ij} = \frac{1}{2}|i - 3j|$.

10 Marks (CO1)