Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF COMMERCE
MID TERM EXAMINATION - OCT 2023

Semester : Semester I - 2023
Course Code : MAT1021
Course Name : Sem I - MAT1021 - Business Mathematics
Program : BBA

Date : 30-OCT-2023
Time : 11:30 AM - 1:00 PM
Max Marks : 50
Weightage : 25%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS **(5 X 2 = 10M)**

1. What is the sum of the n^{th} term in GP?

(CO1) [Knowledge]

2. Find the sum of the first 16 terms of A.P $41,36,31,\ldots..$

(CO1) [Knowledge]

3. If the determinant of a matrix is equal to 3, find the value of x when $A=\begin{bmatrix} x & 1 \\ 2 & -1 \end{bmatrix}$.

(CO2) [Knowledge]

4. Find product of the matrix $A=\begin{bmatrix} 5 & 5 \\ 6 & 1 \end{bmatrix}$ and $B=\begin{bmatrix} 2 & 3 \\ 1 & 0 \end{bmatrix}$.

(CO2) [Knowledge]

5. Compute A^{-1} for the matrix $A=\begin{bmatrix} 2 & -4 \\ -3 & 5 \end{bmatrix}$

(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS **(4 X 5 = 20M)**

6. Find the number of terms needed to get *Sn=0* in the A.P of *96, 93, 90, ...*

(CO1) [Comprehension]

7. In a certain culture, the count of bacteria gets doubled after every hour. There were 3 bacteria in the culture initially. What would be the total count of bacteria at the end of the 6th hour?

(CO1) [Comprehension]

8. Compute AB and BA, where $A = \begin{bmatrix} 1 & 2 & -3 \\ 6 & 0 & 3 \\ 2 & -1 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 4 & -1 & 3 \\ 3 & 3 & 10 \\ 2 & 0 & 3 \end{bmatrix}$

(CO2) [Comprehension]

9. Identify the value of x and y for the equation $2x + 3y = 8, 3x - y = 1$, using Cramer's rule.

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION **(1 X 20 = 20M)**

10. Solve by matrix method $x + y + z = 6, x + 2y + 3z = 14, -x + y - z = -2$.

(CO2) [Application]