

Roll No



**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF COMMERCE  
MID TERM EXAMINATION - DEC 2023**

**Semester :** Semester I - 2023 - 24 - BCH - 2023

**Course Code :** MAT1021

**Course Name :** Sem I - MAT1021 - Business Mathematics

**Program :** B.Com. Honors

**Date :** 21-DEC-2023

**Time :** 9:30 AM - 11:00 AM

**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. Find the 8th term of the following GP series 1, 1/2, 1/4, 1/8 ...  
(CO1) [Knowledge]
2. Find the sum of the first 16 terms of A.P 41,36,31,.....  
(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 AB when  $A = \begin{bmatrix} 1 & 2 \\ 2 & 2 \end{bmatrix}$  and  $B = \begin{bmatrix} -2 \\ -1 \end{bmatrix}$ .  
(CO2) [Knowledge]
5. compute  $A^{-1}$  for the matrix  $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$   
(CO2) [Knowledge]

**PART B**

**ANSWER ALL THE QUESTIONS**

**(4 X 5 = 20M)**

6. In an A.P  $7^{th}$  and  $21^{st}$  terms are 6 and -22 respectively. Find the  $30^{th}$  term.  
(CO1) [Comprehension]
7. The distance travelled by a ball dropped from a height (in inches) are 128/9, 32/3, 8, 6... What could be the distance travelled by the ball before coming to rest?  
(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. Estimate the  $x$  and  $y$  using inverse method for these equations  $3x - 2y = 7, 4x + y = 2$  (CO2) [Comprehension]

### PART C

#### ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

10. Find  $x, y$  and  $z$  using matrix method  $2x + y - z = 3, x + y + z = 1, x - 2y - 3z = 4$  (CO2) [Application]