Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 07

BCA/ B.Sc.(IT)/(Graphics & Web Designing) (Sem.–1)

MATHEMATICS

Subject Code : UGCA1901

M.Code : S76961

Date of Examination: 18-01-2025

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. Solve the following :

a) Define Singleton Set.

b) If A = {4,7}& B = {2,5}, find A ∪ B.

c) Write the Power set of $A = \{a, b\}$.

d) Write the negative statement of "Earth revolves around the Sun."

e) Write the truth table for Disjunction.

f) Define identity Matrix.

g) If $X\begin{bmatrix} 2 & 3 \\ -1 & 4 \end{bmatrix} \& Y = \begin{bmatrix} 1 & 0 \\ -2 & 3 \end{bmatrix}$, then find $X - Y$.

h) If $A = \begin{bmatrix} 0 & 6 \\ 3 & -4 \end{bmatrix}$, Find the transpose of A.

i) Find the 9th term in the sequence 5, 10, 20, ... of G.P.

j) Define Arithmetic mean.

SECTION-B

2. If $U = \{1,2,3,4,5,6,7,8,9\}$, $X = \{1,2,7,8\}$ & $Y = \{2,5,8,9\}$. Find $X \cup Y$, $X \cap Y$, $Y - X$, Y'.

3. Prove that: $p \vee (q \ r) = (p \vee q) \ (p \vee r)$.

4. If $X = \begin{bmatrix} 5 & 2 & -3 \\ 1 & 0 & 6 \\ -5 & 1 & 7 \end{bmatrix}$, $= Y \begin{bmatrix} 3 & -2 & 6 \\ 2 & 7 & -1 \\ 5 & 4 & 0 \end{bmatrix}$, then find YX.

5. If $A = \begin{bmatrix} 4 & 2 & -3 \\ 1 & 3 & -6 \\ -5 & 0 & -7 \end{bmatrix}$, $B = \begin{bmatrix} 0 & -2 & -1 \\ 1 & 3 & 0 \\ -5 & 0 & -7 \end{bmatrix}$, *then find* $2A + 3B$.

6. How many natural numbers are there between 200 and 500 which are divisible by 7.

7. The 3rd and 8th term of a G.P. are 4 and 128 resp. Find the G.P.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.