

Roll No.

Total No. of Pages : 02

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

MATHEMATICS

Subject Code : UGCA1901

M.Code : 76961

Date of Examination: 20-06-2025

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. Write briefly :

- Find 15th term of sequence 5, 2, -1,
- If A and B are two sets then prove that $A - B = A \cap B^C$
- Explain Difference of two Sets.
- State and Prove Associative Laws of Logic of Proposition.
- Define Scalar Matrix.
- Construct 2×3 matrix whose elements are given by $a_{ij} = i + 2j$
- Translate statement into symbolic form :** "number 7 is prime and odd".
- Find the AM between 14 and 26.
- Write down the truth table for $(p \wedge q) \wedge \sim (p \vee q)$
- Define the Contradiction proposition.

SECTION-B

2. If $A = \begin{bmatrix} 1 & 0 & -1 \\ 5 & 1 & 0 \\ -3 & 1 & 3 \end{bmatrix}$ Evaluate $A^3 - 6A^2 + 11A - 3I$
3. Out of 400 boys of a school, 112 played cricket, 120 played hockey and 168 played football. Of these, 32 played both football and hockey, 40 played cricket and football and 20 played cricket and hockey. 12 boys played all the games. How many boys did not play the game and how many played only one game?
4. Let $A = \begin{bmatrix} 3 & 2 & 5 \\ 4 & 1 & 3 \\ 0 & 6 & 7 \end{bmatrix}$. Express A as the sum of two matrices such that one is symmetric and other is skew symmetric.
5. If A is the set of rational numbers and $B = \{x : x^2 - 4x + 4 = 0\}$ then find (i) $A \cup B$, (ii) $A - B$, (iii) $B \cup A$, (iv) $A \Delta B$, (v) $B \Delta A$
6. Find sum up to the n terms of $7 + 77 + 777 + 7777 + \dots$
7. **Test the validity of the following arguments :**

If my brother stands first in the class, I will give him a watch. Either he stood first or I was out of station. I did not give my brother a watch this time. Therefore, I was out of station.

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.