17/01/24

Done

SAMPLE QUESTION PAPER 1

A Highly Simulated Sample Question Paper for ISC Class XII

MATHEMATICS (Fully Solved)

GENERAL INSTRUCTIONS

1. The Question Paper consists of three sections A, B and C.
2. Candidates are required to attempt all questions from **Section A** and all questions **either** from **Section B** or **Section C**.
3. **Section A** Internal choice has been provided in two questions of two marks each, two questions of four marks each and two questions of six marks each.
4. **Section B** Internal choice has been provided in one question of two marks and one question of four marks.
5. **Section C** Internal choice has been provided in one question of two marks and one question of four marks.
6. All working, including rough work, should be done on the same sheet as, and adjacent to the rest of the answer.
7. The intended marks for questions or parts of questions are given in brackets [ ].
8. Mathematical tables and graph papers are provided.

Time : 3 Hours

Max. Marks : 80

Section A (65 Marks)

1. In sub-parts (i) to (x) choose the correct option and in sub-parts (xi) to (xv), answer the questions as instructed.

[15 × 1]

(i) If the binary operation $*$ defined on Q, is defined as $a * b = 2a + b - ab$, $\forall a, b \in Q$, then the value of $3 * 4$ is
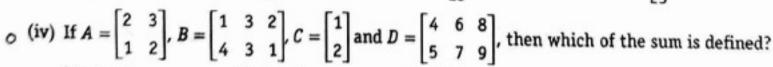
(a) 2   (b) -2 (c) 3   (d) -3

(ii) Let $A = \{1, 2, 3, \dots n\}$ and $B = \{a, b\}$. Then, the number of surjection from A into B is

(a) ^nP_n (b) $2^n - 2$ (c) $2^n - 1$ (d) None of these

(iii) Value of $\sin\left(2\sin^{-1}\frac{3}{5}\right)$ is

(a) $\frac{12}{25}$ (b) $\frac{24}{25}$ (b) $\frac{13}{25}$ (d) $\frac{17}{25}$

(iv) If $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 & 2 \\ 4 & 3 & 1 \end{bmatrix}$, $C = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ and $D = \begin{bmatrix} 4 & 6 & 8 \\ 5 & 7 & 9 \end{bmatrix}$, then which of the sum is defined?

(a) $A + B$ (b) $C + D$ (c) $B + C$ (d) $B + D$

(v) If $\begin{bmatrix} 1 & 2 \\ -2 & -b \end{bmatrix} + \begin{bmatrix} a & 4 \\ 3 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 0 \end{bmatrix}$, then $a^2 + b^2$ is equal to

(a) 20   (b) 22   (c) 12   (d) 10