

Roll No _____ (To be filled in by the candidate)

MATHEMATICS (Academic Sessions 2020 – 2022 to 2023 – 2025)

Q.PAPER – I (Objective Type) 224-1st Annual-(INTER PART – I) Time Allowed : 30 Minutes

GROUP – I

Maximum Marks : 20

PAPER CODE = 6195

LHR-1-24

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Rank of the matrix $\begin{bmatrix} 1 \\ 0 \\ -1 \end{bmatrix}$ is : (A) 0 (B) 1 (C) 2 (D) 3
2	The fraction $\frac{x+1}{x^2+2}$ is : (A) Improper fraction (B) Proper fraction (C) Identity (D) Mixed
3	The multiplicative inverse of (1, 0) is : (A) (1, 0) (B) (0, 1) (C) (-1, 0) (D) (0, -1)
4	The roots of $2x^2 - 7x + 3 = 0$, are : (A) Equal (B) Complex (C) Irrational (D) Rational
5	The value of $(-i)^9$ is : (A) -1 (B) 1 (C) i (D) -i
6	If A is a square matrix of order 3 and $ A = 2$, then $ 2A =$: (A) 16 (B) 8 (C) 6 (D) 2
7	The number of elements of the power set of $A = \{a, \{b, c\}\}$ are : (A) 2 (B) 4 (C) 6 (D) 8
8	If $A \subseteq B$, then : (A) $A \cup B = A$ (B) $A \cap B = B$ (C) $B \cup A = A$ (D) $A \cup B = B$
9	If ω is a cube root of unity, then value of $(1 + \omega - \omega^2)^3$ is : (A) 8ω (B) $8\omega^2$ (C) -8 (D) 8
10	The converse of $\sim p \rightarrow q$ is : (A) $p \rightarrow q$ (B) $p \rightarrow \sim q$ (C) $\sim q \rightarrow p$ (D) $q \rightarrow \sim p$
11	$\cos 2\theta =$: (A) $1 - \sin^2 \theta$ (B) $1 - 2\sin \theta$ (C) $1 - 2\sin^2 \theta$ (D) $2\sin^2 \theta - 1$
12	The G.M. between $\frac{1}{a}$ and $\frac{1}{b}$ is : (A) $\pm \sqrt{ab}$ (B) $\pm \frac{1}{ab}$ (C) $\pm \sqrt{\frac{1}{ab}}$ (D) ab

(Turn Over)

(2)

1-13	If $\cos x = -\frac{\sqrt{3}}{2}$, then the reference angle is : (A) $\frac{\pi}{3}$ (B) $\frac{\pi}{6}$ (C) $-\frac{\pi}{3}$ (D) $-\frac{\pi}{6}$
14	If $\sin \theta < 0$ and $\cot \theta > 0$, then θ lies in quadrant : (A) IV (B) III (C) II (D) I
15	The value of $\sin^{-1}(\cos \frac{\pi}{6})$ is equal to : (A) $\frac{\pi}{3}$ (B) $\frac{\pi}{6}$ (C) $\frac{\pi}{2}$ (D) $\frac{3\pi}{2}$
16	The relation between A, G, H is : (A) $G^2 = AH$ (B) $H^2 = AG$ (C) $A^2 = HG$ (D) $A > G < H$
17	The number of terms in the expansion of $(a+x)^n$ is : (A) $n-1$ (B) n (C) $n+2$ (D) $n+1$
18	$\sqrt{\frac{s(s-c)}{ab}} = :$ (A) $\cos \frac{\alpha}{2}$ (B) $\sin \frac{\alpha}{2}$ (C) $\cos \frac{\gamma}{2}$ (D) $\sin \frac{\gamma}{2}$
19	A die is thrown, what is the probability to get 3 dots : (A) $\frac{1}{6}$ (B) $\frac{1}{3}$ (C) $\frac{1}{2}$ (D) $\frac{2}{3}$
20	The period of $\cos \frac{x}{6}$ is : (A) 2π (B) 3π (C) 6π (D) 12π