

Roll No \_\_\_\_\_ ( To be filled in by the candidate)

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

Q.PAPER – I ( Objective Type ) 224-1<sup>st</sup> 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 :<br>(A) 0 (B) 1 (C) 2 (D) 3   |
| 2   | The fraction $\frac{x+1}{x^2+2}$ is :<br>(A) Improper fraction (B) Proper fraction (C) Identity (D) Mixed   |
| 3   | The multiplicative inverse of ( 1 , 0 ) is :<br>(A) ( 1 , 0 ) (B) ( 0 , 1 ) (C) ( -1 , 0 ) (D) ( 0 , -1 )   |
| 4   | The roots of $2x^2 - 7x + 3 = 0$ , are :<br>(A) Equal (B) Complex (C) Irrational (D) Rational   |
| 5   | The value of $(-i)^9$ is :<br>(A) -1 (B) 1 (C) i (D) -i   |
| 6   | If A is a square matrix of order 3 and $ A =2$ , then $ 2A =$ :<br>(A) 16 (B) 8 (C) 6 (D) 2   |
| 7   | The number of elements of the power set of $A = \{ a, \{ b, c \} \}$ are :<br>(A) 2 (B) 4 (C) 6 (D) 8   |
| 8   | If $A \subseteq B$ , then :<br>(A) $A \cup B = A$ (B) $A \cap B = B$ (C) $B \cup A = A$ (D) $A \cup B = B$  |
| 9   | If $\omega$ is a cube root of unity, then value of $(1 + \omega - \omega^2)^3$ is :<br>(A) $8\omega$ (B) $8\omega^2$ (C) -8 (D) 8                     |
| 10  | The converse of $\sim p \rightarrow q$ is :<br>(A) $p \rightarrow q$ (B) $p \rightarrow \sim q$ (C) $\sim q \rightarrow p$ (D) $q \rightarrow \sim p$ |
| 11  | $\cos 2\theta =$<br>(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 :<br>(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 :<br>(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 $\theta$ lies in quadrant :<br>(A) IV (B) III (C) II (D) I   |
| 15   | The value of $\sin^{-1}(\cos \frac{\pi}{6})$ is equal to :<br>(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 :<br>(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 :<br>(A) $n-1$ (B) $n$ (C) $n+2$ (D) $n+1$  |
| 18   | $\sqrt{\frac{s(s-c)}{ab}} = :$ <b>RESULT.PK</b><br>(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 :<br>(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 :<br>(A) $2\pi$ (B) $3\pi$ (C) $6\pi$ (D) $12\pi$  |

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