

Mathematics(Objective)

Group-II

Time: 30 Minutes Marks : 20

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

- 1.1 A complex number $1 + i$ can also be expressed as:
 (A) $2(\cos 45^\circ + i \sin 45^\circ)$ (B) $\sqrt{2}(\cos 45^\circ - i \sin 45^\circ)$ (C) $\sqrt{2}(\cos 45^\circ + i \sin 45^\circ)$ (D) $2(\cos 45^\circ - i \sin 45^\circ)$
2. If Z is a complex number and $Z = \bar{Z}$ then Z must be:
 (A) Real (B) Imaginary (C) Rational (D) Irrational
3. The set $\{(a, b)\}$ is called:
 (A) Infinite set (B) Singleton set (C) Empty set (D) Set with two elements
4. Drawing conclusion from premises believed to be true is called:
 (A) Proposition (B) Contradiction (C) Induction (D) Deduction
5. If p is a logical statement $p \wedge \sim p$ is always:
 (A) Absurdity (B) Contingency (C) Tautology (D) Conditional
6. If $A = \begin{bmatrix} a & b & c \end{bmatrix}$, then order of A^t is:
 (A) 1×3 (B) 3×1 (C) 3×3 (D) 1×1
7. If the matrix $\begin{bmatrix} \lambda & 1 \\ -2 & 1 \end{bmatrix}$ is singular then $\lambda =$
 (A) 2 (B) 1 (C) -1 (D) -2
8. If $4^{3x} = \frac{1}{2}$ then x is equal to:
 (A) $-\frac{1}{6}$ (B) -6 (C) $\frac{1}{6}$ (D) 6
9. If ω is cube root of unity, then $\omega + \omega^2 =$
 (A) 0 (B) -1 (C) 1 (D) $\frac{1}{\omega}$
10. From the identity $5x + 4 = A(x - 1) + B(x + 2)$, value of B is:
 (A) -3 (B) 3 (C) -2 (D) 2
11. Which of the term cannot be a term of G.P:
 (A) -1 (B) 1 (C) 0 (D) 5
12. $\sum_{k=1}^n K$ is equal to:
 (A) $\frac{n+1}{2}$ (B) $\frac{n(n+1)}{2}$ (C) $\frac{n(n+1)(2n+1)}{6}$ (D) $\frac{n(n-1)}{2}$
13. $\frac{{}^n P_r}{r!}$ is equal to:
 (A) ${}^n C_r$ (B) ${}^n C_{r-1}$ (C) ${}^{n+1} C_r$ (D) ${}^{n-1} C_r$
14. In expansion of $(a + b)^{16}$ middle term will be:
 (A) 11th (B) 12th (C) 8th (D) 9th
15. Which of the following is **NOT** Quadrantal angle?
 (A) $\frac{9}{2}\pi$ (B) 13π (C) $\frac{4}{3}\pi$ (D) $\frac{\pi}{2}$
16. The angle $\frac{3\pi}{2} - \theta$ lies in quadrant:
 (A) I (B) II (C) III (D) IV
17. The range of $\sin x$ is:
 (A) $[-1, 1]$ (B) $[-1, 0]$ (C) $[0, 2]$ (D) $[-2, 2]$
18. The radius of inscribed circle is:
 (A) $\frac{abc}{4\Delta}$ (B) $\frac{S}{\Delta}$ (C) $\frac{\Delta}{S - a}$ (D) $\frac{\Delta}{S}$
19. $\cos \left(\sin^{-1} \frac{1}{\sqrt{2}} \right)$ is equal to:
 (A) $\frac{1}{2}$ (B) $\frac{\pi}{4}$ (C) $\frac{1}{\sqrt{2}}$ (D) $-\frac{\pi}{4}$
20. If $\sin x = \frac{1}{2}$, then reference angle is:
 (A) $\frac{\pi}{3}$ (B) $\frac{\pi}{4}$ (C) $-\frac{\pi}{6}$ (D) $\frac{\pi}{6}$