

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	$\cos\left(\frac{3\pi}{2} - \theta\right)$ is equal to :	(A) $-\sin \theta$	(B) $\sin \theta$	(C) $\cos \theta$	(D) $-\cos \theta$
2	Probability of impossible event is :	(A) $\frac{1}{2}$	(B) 1	(C) 0	(D) 2
3	$2 \tan^{-1} A$ equals :	(A) $\tan^{-1}\left(\frac{A}{1-A^2}\right)$	(B) $\tan^{-1}\left(\frac{2A}{1-A^2}\right)$	(C) $\tan^{-1}\left(\frac{2A}{1+A^2}\right)$	(D) $\tan^{-1}\left(\frac{A}{1+A^2}\right)$
4	Which angle is quadrantal angle :	(A) 45°	(B) 60°	(C) 270°	(D) 120°
5	Solution of equation $\tan x = \frac{1}{\sqrt{2}}$ lies in the quadrants :	(A) I and II	(B) II and III	(C) I and III	(D) I and IV
6	Middle terms in the expansion of $(x+y)^{11}$ are :	(A) T_6, T_7	(B) T_5, T_6	(C) T_7, T_8	(D) T_8, T_9
7	If Δ is the area of a triangle ABC, then with usual notation $\Delta =$:	(A) $\frac{1}{2}bc \sin \beta$	(B) $\frac{1}{2}ab \sin \alpha$	(C) $\frac{1}{3}bc \sin \alpha$	(D) $\frac{1}{2}bc \sin \alpha$
8	Range of cotangent function is :	(A) N	(B) Z	(C) R	(D) C
9	Expansion of $(3-5x)^{\frac{1}{2}}$ is valid if :	(A) $ x < \frac{3}{5}$	(B) $ x < \frac{5}{3}$	(C) $ x < 5$	(D) $ x < 3$
10	With usual notation $R =$:	(A) $\frac{b}{2 \sin \gamma}$	(B) $\frac{a}{2 \sin \alpha}$	(C) $\frac{c}{2 \sin \alpha}$	(D) $\frac{a}{2 \sin \beta}$
11	The sum of the four fourth roots of 81 is :	(A) 0	(B) 81	(C) -81	(D) 3

1-12	The property $\forall a, b \in \mathcal{R}, a = b \Rightarrow b = a$ is called : (A) Commutative (B) Transitive (C) Symmetric (D) Reflexive
13	The value of $4! \cdot 0! \cdot 1!$ is : (A) 0 (B) 1 (C) 4 (D) 24
14	A square matrix $A = [a_{ij}]$ in which $a_{ij} = 0$ for all $i > j$ is called : (A) Upper triangular (B) Lower triangular (C) Symmetric (D) Skew-symmetric
15	$\sum_{k=1}^n (1)^k = :$ (A) $\frac{n(n-1)}{2}$ (B) $\frac{n}{2}$ (C) n (D) $\frac{n(n+1)}{2}$
16	If $b^2 - 4ac > 0$ but not a perfect square, then roots are : (A) Equal (B) Complex (C) Rational (D) Irrational
17	No term of geometric sequence can be : (A) 0 (B) 1 (C) 2 (D) 3
18	If A and B are two sets, then $A - B = :$ (A) $A \cup B^c$ (B) $A \cap B^c$ (C) $(A \cup B)^c$ (D) $(A \cap B)^c$
19	Partial fractions of $\frac{1}{x^3-1}$ will be of the form : (A) $\frac{A}{x+1} + \frac{Bx+C}{x^2+x+1}$ (B) $\frac{A}{x-1} + \frac{Bx+C}{x^2+x+1}$ (C) $\frac{A}{x-1} + \frac{Bx+C}{x^2-x+1}$ (D) $\frac{A}{x+1} + \frac{Bx+C}{x^2-x+1}$
20	If $A = [a_{ij}]_{2 \times 2}$, then $ kA = :$ (A) $ A $ (B) $k^2 A $ (C) $k A $ (D) $k A ^2$