

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

MATHEMATICS (Academic Sessions 2017 – 2019 to 2020 – 2022)

Q.PAPER – I (Objective Type) 221-(INTER PART – I)

Time Allowed : 30 Minutes

GROUP – I

Maximum Marks : 20

PAPER CODE = 6197

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	If $\begin{vmatrix} k & 4 \\ 4 & k \end{vmatrix} = 0$, then value of k is : (A) ± 16 (B) 0 (C) ± 4 (D) ± 8
2	Partial fraction of $\frac{1}{x^2-1}$ will be of the form : (A) $\frac{Ax+B}{x^2-1}$ (B) $\frac{A}{x+1} + \frac{B}{x-1}$ (C) $\frac{A}{x+1}$ (D) $\frac{B}{x-1}$
3	If H is H.M. between a and b then H = : (A) $\frac{2ab}{a+b}$ (B) $\frac{a+b}{2ab}$ (C) $\frac{a+b}{2}$ (D) $\pm\sqrt{ab}$
4	When $p(x) = x^3 + 4x^2 - 2x + 5$ is divided by $(x-1)$ then remainder is : (A) 10 (B) -10 (C) 8 (D) -8
5	The trivial solution of the homogeneous linear equation in three variables is : (A) (0, 0, 0) (B) (1, 0, 0) (C) (0, 1, 0) (D) (0, 0, 1)
6	The property used in $(a+1) + \frac{3}{4} = a + (1 + \frac{3}{4})$ is : (A) Closure (B) Associative (C) Commutative (D) Additive
7	The number of roots of polynomial equation $8x^6 - 19x^3 - 27 = 0$ are : (A) 2 (B) 4 (C) 6 (D) 8
8	If $a_{n-3} = 2n - 5$ then 7 th term is = : (A) 9 (B) 15 (C) 11 (D) 13
9	For an infinite geometric series of which $ r < 1$ we have $S_\infty =$: (A) $\frac{a(1+r)}{1-r}$ (B) $\frac{a}{1+r}$ (C) $\frac{a}{2r}$ (D) $\frac{a}{1-r}$
10	The converse of $p \rightarrow q$ is : (A) $\sim p \rightarrow q$ (B) $p \rightarrow \sim q$ (C) $q \rightarrow p$ (D) $\sim p \rightarrow \sim q$
11	The middle term in expansion of $(a+x)^n$ when n is even : (A) $\left(\frac{n}{2}+1\right)$ th term (B) $\left(\frac{n}{2}-1\right)$ th term (C) $\left(\frac{n}{2}\right)$ th term (D) $\left(\frac{n+1}{2}\right)$ th term

(Turn Over)

1-12	If Δ is the area of a triangle ABC then $\Delta =$: (A) $\frac{1}{2}bc \sin \beta$ (B) $\frac{1}{2}ab \sin \alpha$ (C) $\frac{1}{2}bc \sin \alpha$ (D) $ab \sin \alpha$
13	$\frac{9\pi}{5}$ rad in degree measure is : (A) 321° (B) 322° (C) 323° (D) 324°
14	With usual notations, the value of $a + b + c$ is : (A) s (B) $2s$ (C) $3s$ (D) $\frac{s}{2}$
15	The factorial of a positive integer 'n' is : (A) $n! = n(n-1)!(n-2)!$ (B) $n! = n(n+2)!$ (C) $n! = n(n-1)!$ (D) $n! = n(n-2)!$
16	The solution of $1 + \cos x = 0$ if $0 \leq x \leq 2\pi$ is equal to : (A) $\{0\}$ (B) $\left\{\frac{\pi}{2}\right\}$ (C) $\left\{\frac{\pi}{3}\right\}$ (D) $\{\pi\}$
17	In anti-clockwise direction $\frac{1}{4}$ rotation is equal to : (A) 90° (B) 180° (C) 270° (D) 45°
18	The period of $3\cos\left(\frac{x}{5}\right)$ is : (A) π (B) 10π (C) $\frac{\pi}{10}$ (D) $\frac{\pi}{5}$
19	$\sec\left[\cos^{-1}\left(\frac{1}{2}\right)\right] =$: (A) $\frac{1}{2}$ (B) 2 (C) $\frac{\pi}{3}$ (D) $\frac{\pi}{6}$
20	$\cos 48^\circ + \cos 12^\circ =$: (A) $2\cos 18^\circ$ (B) $3\cos 18^\circ$ (C) $\sqrt{3}\cos 18^\circ$ (D) $\sqrt{2}\cos 18^\circ$