

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 – II

Maximum Marks : 20

PAPER CODE = 6194

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	$\tan 2\theta = :$ (A) $\frac{2 \tan \theta}{1 + \tan^2 \theta}$ (B) $\frac{\tan \theta}{1 - \tan^2 \theta}$ (C) $\frac{2 \tan \theta}{1 - \tan^2 \theta}$ (D) $\frac{1 - \tan^2 \theta}{1 + \tan^2 \theta}$
2	A die is rolled then n(s) is : (A) 36 (B) 6 (C) 1 (D) 9
3	$\sin^{-1} A + \sin^{-1} B$ equals : (A) $\cos^{-1}(AB - \sqrt{(1-A^2)(1-B^2)})$ (B) $\cos^{-1}(AB + \sqrt{(1-A^2)(1-B^2)})$ (C) $\sin^{-1}(A\sqrt{1-B^2} + B\sqrt{1-A^2})$ (D) $\sin^{-1}(A\sqrt{1-B^2} - B\sqrt{1-A^2})$
4	With usual notation ℓ equals to : (A) r (B) θ (C) $r\theta$ (D) $2\pi r$
5	If $\cos 2x = 0$, then solution in I quadrant is : (A) 30° (B) 60° (C) 45° (D) 15°
6	The middle term in the expansion $(a+x)^n$, 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
7	For a triangle ABC with usual notation $\sqrt{\frac{(s-a)(s-b)}{s(s-c)}}$ equals : (A) $\tan \gamma$ (B) $\tan \frac{\gamma}{2}$ (C) $\cot \gamma$ (D) $\cot \frac{\gamma}{2}$
8	The range of $\sin x$ is : (A) $[-1, 0]$ (B) $[-1, 1]$ (C) $[0, 2]$ (D) $[-2, 2]$
9	An angle is said to be in standard position if its vertex is : (A) $(0, 0)$ (B) $(0, 1)$ (C) $(1, 1)$ (D) $(1, 0)$
10	The circum radius 'R' is equal to : (A) $\frac{abc}{\Delta}$ (B) $\frac{4abc}{\Delta}$ (C) $\frac{\Delta}{s}$ (D) $\frac{abc}{4\Delta}$
11	If ω is the cube root of unity then $(1+\omega-\omega^2)^8 = :$ (A) 256 (B) -256 (C) -256ω (D) 256ω

(Turn Over)

1-12	If $z = \cos \theta + i \sin \theta$ then $ z $ is equal to : (A) 0 (B) 1 (C) 2 (D) -1
13	No term of geometric series is : (A) $\frac{1}{2}$ (B) $\frac{1}{3}$ (C) Zero (D) 1
14	The inverse of a square matrix exists if A is : (A) Symmetric (B) Non-singular (C) Singular (D) Rectangular
15	The arithmetic mean between $1-x+x^2$ and $1+x+x^2$ is : (A) $x+1$ (B) x^2+1 (C) $\frac{x+1}{2}$ (D) $\frac{x^2+1}{2}$
16	The roots of the equation $ax^2+bx+c=0$ are complex if : (A) $b^2-4ac < 0$ (B) $b^2-4ac = 0$ (C) $b^2-4ac > 0$ (D) Both B and C
17	The geometric mean between $\frac{1}{a}$ and $\frac{1}{b}$ is : (A) $\pm \sqrt{\frac{1}{ab}}$ (B) $\pm \sqrt{ab}$ (C) $\frac{1}{ab}$ (D) ab
18	Number of ways in which a set can be described as : (A) 1 (B) 2 (C) 3 (D) 4
19	The given form $(x-4)^2 = x^2 - 8x + 16$ is called : (A) Transidental equation (B) Cubic equation (C) An equation (D) An identity
20	A system of linear equations is said to be inconsistent if the system has : (A) Many solutions (B) Unique solution (C) No solution (D) Two solutions only