Inter (Part-I) 2021

Mathematics	Group-II	PAPER: I
Time: 30 Minutes	(OBJECTIVE TYPE)	Marks: 20

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- The inverse of a square matrix exists if A is:

(a) Symmetric (b) Non-singular ✓
(c) Singular (d) Rectangular

2- The given form $(x-4)^2 = x^2 - 8x + 16$ is called:

(a) Transidental equation
(b) Cubic equation
(c) An equation (d) An identity ✓

3- 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) $\frac{x^2+1}{2}$

4- 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

5- 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

6- If $z = \cos\theta + i\sin\theta$, then $|z|$ is equal to:

(a) 0 (b) 1 ✓
(c) 2 (d) –1

7- If ω is the cube root of unity, then $(1 + \omega - \omega^2)^8 =$:

(a) 256 (b) –256
(c) -256ω (d) 256ω ✓

8- 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

9- No term of geometric series is:

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$

(c) Zero ✓ (d) 1

10- Number of ways in which a set can be described as:

(a) 1 (b) 2

(c) 3 ✓ (d) 4

11- 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

12- 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) $\cot\frac{\gamma}{2}$

13- With usual notation ℓ equals to:

(a) r (b) θ

(c) $r\theta$ ✓ (d) $2\pi r$

14- The circum radius 'R' is equal to:

(a) $\frac{abc}{\Delta}$ (b) $\frac{4abc}{\Delta}$

(c) $\frac{\Delta}{s}$ (d) $\frac{abc}{4\Delta}$ ✓

15- A die is rolled, then n(s) is:

(a) 36 (b) 6 ✓

(c) 1 (d) 9

16- If cos 2x = 0, then solution in I quadrant is:

(a) 30° (b) 60°

(c) 45° ✓ (d) 15°

17- 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)

18- The range of sin x is:

(a) [–1 , 0] (b) [–1, 1] ✓

(c) [0, 2] (d) [–2, 2]

19- $\sin^{-1} A + \sin^{-1} B$ equals:

(a) $\cos^{-1}\left(AB - \sqrt{(1-A^2)(1-B^2)}\right)$

(b) $\cos^{-1}\left(AB + \sqrt{(1-A^2)(1-B^2)}\right)$

(c) $\sin^{-1}\left(A\sqrt{1-B^2} + B\sqrt{1-A^2}\right)$ ✓

(d) $\sin^{-1}\left(A\sqrt{1-B^2} - B\sqrt{1-A^2}\right)$

20- $\tan 2\theta =$:

(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) $\frac{1-\tan^2\theta}{1+\tan^2\theta}$