Inter (Part-I) 2019

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 property $\forall a, b \in \Re, a = b \Rightarrow b = a$ is called:

(a) Commutative (b) Transitive
(c) Symmetric √ (d) Reflexive

2- 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) $(A \cap B)^c$

3- 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

4- If $A = [a_{ij}]_{2\times2}$, then $|kA| =$:

(a) $|A|$ (b) $k^2|A|$ √
(c) $k|A|$ (d) $k|A|^2$

5- If $b^2 - 4ac > 0$ but not a perfect square, then roots are:

(a) Equal (b) Complex
(c) Rational (d) Irrational √

6- The sum of the four fourth roots of 81 is:

(a) 0 √ (b) 81
(c) –81 (d) 3

7- 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) $\frac{A}{x+1} + \frac{Bx + C}{x^2 - x + 1}$

8- $\sum_{k=1}^{n} (1)^k =$:

(a) $\frac{n(n-1)}{2}$ (b) $\frac{n}{2}$

(c) n ✓ (d) $\frac{n(n+1)}{2}$

9- **No term of geometric sequence can be:**

(a) 0 ✓ (b) 1

(c) 2 (d) 3

10- **The value of 4! . 0! . 1! is:**

(a) 0 (b) 1

(c) 4 (d) 24 ✓

11- **Probability of impossible event is:**

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

(c) 0 ✓ (d) 2

12- **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

13- **Expansion of $(3 - 5x)^{1/2}$ is valid if:**

(a) $|x| < \frac{3}{5}$ ✓ (b) $|x| < \frac{5}{3}$

(c) $|x| < 5$ (d) $|x| < 3$

14- **Which angle is quadrantal angle:**

(a) 45° (b) 60°

(c) 270° ✓ (d) 120°

15- **$\cos\left(\frac{3\pi}{2} - \theta\right)$ is equal to:**

(a) $-\sin\theta$ ✓ (b) $\sin\theta$

(c) $\cos\theta$ (d) $-\cos\theta$

16- **Range of cotangent function is:**

(a) N (b) Z

(c) R ✓ (d) C

17- **With usual notation R = :**

(a) $\frac{b}{2 \sin \gamma}$ (b) $\frac{a}{2 \sin \alpha}$ ✓

(c) $\frac{c}{2 \sin \alpha}$ (d) $\frac{a}{2 \sin \beta}$

18- **If Δ is the area of a triangle ABC, then with usual notation Δ = :**

(a) $\frac{1}{2} bc \sin \beta$ (b) $\frac{1}{2} ab \sin \alpha$

(c) $\frac{1}{3} bc \sin \alpha$ (d) $\frac{1}{2} bc \sin \alpha$ ✓

19- **$2 \tan^{-1} A$ 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) $\tan^{-1}\left(\frac{A}{1 + A^2}\right)$

20- **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