iOM

International Olympiad of Mathematics

Presented by: SILVER ZONE FOUNDATION NEW DELHI - INDIA

Organized by:
Silverzone Foundation
New Delhi, India
For supremacy in Mathematics
www.silverzone.org

CLASS : 11 SAMPLE QUESTIONS

The Actual Question Paper Contains 40 Questions. The Duration of the Test Paper is 50 Minutes.

1. The set $(A \cup B \cup C) \cap (A \cap B' \cap C')' \cap C'$ is equal to _____.

(A) $B \cap C'$ (B) $A \cap C$

(C) $B' \cap C'$ (D) $B \cap C$

2. The value of $\frac{\sec 8\theta - 1}{\sec 4\theta - 1}$ is equal to _____.

(A) $\frac{\tan 8\theta}{\tan 2\theta}$ (B) $\frac{\tan 2\theta}{\tan 8\theta}$

(C) $\frac{\tan 8\theta}{\tan 4\theta}$ (D) $\frac{\tan 4\theta}{\tan 8\theta}$

3. Five students A, B, C, D and E are sitting in a row, D is on the right of E. B is on the left of E but is on the right of A. D is on the left of C. Who is sitting in the middle?

(A) A
(B) B
(C) C
(D) E

4. If $f(x) = \sqrt{x}$ and $g(x) = 2x - 5$, then domain of (fog) (x) is _____.

(A) $\left[\frac{-5}{2}, \infty\right)$ (B) $\left(0, \frac{5}{2}\right]$

(C) $\left[\frac{5}{2}, \infty\right)$ (D) $(5, \infty)$

5. Let two fair six-faced dice A and B be thrown simultaneously. If E_1 is the event that die A shows up four, E_2 is the event that die B shows up two and E_3 is the event that the sum of numbers on both dice is odd, then which one of the following statements is not true?

(A) E_1, E_2 and E_3 are independent
(B) E_1 and E_3 are independent
(C) E_2 and E_3 are independent
(D) E_1 and E_2 are independent

6. Let S denotes the sum of the series

$1 + \frac{8}{2!} + \frac{21}{3!} + \frac{40}{4!} + \frac{65}{5!} + \ldots\ldots\ldots$, then_____.

(A) $S < 8$
(B) $S > 12$
(C) $8 < S < 12$
(D) $12 < S < 16$

7. Sum of digits in the unit's place formed by the digits 1, 2, 3 and 4 taken all at a time is _____.

(A) 90
(B) 70
(C) 60
(D) 50

8. $\lim_{n\to\infty} n\left(\sqrt{n^2+4}-n\right)$ **is equal to _____.**

(A) e

(B) 1

(C) 2

(D) e^2

9. **The negation of** $p \to (\sim p \vee q)$ **is _____.**

(A) $p \to q$

(B) $p \wedge \sim q$

(C) $p \vee \sim q$

(D) $p \to \sim q$

10. **Sanjeev walks 10 metres towards the South. Turning to the left, he walks 20 metres and then moves to his right. After moving a distance of 20 metres, he turns to the right and walks 20 metres. Finally, he turns to the right and moves a distance of 10 metres. How far and in which direction is he from the starting point?**

(A) 10 metres, North

(B) 20 metres, South

(C) 20 metres, North

(D) 10 metres, South

ANSWERS

1. (A)	2. (A)	3. (D)	4. (C)	5. (A)	6. (C)	7. (C)	8. (C)	9. (B)	10. (B)