

CUET Mathematics Test - Set 19

Chapter: Applications of Integrals (Intermediate)

General Instructions

1. Total Questions: **15**
2. Duration: **60 Minutes**
3. All questions are compulsory.
4. Each question carries **5 marks**.
5. For each correct answer: **+5 marks**.
6. For each incorrect answer: **-1 mark**.
7. No negative marking for unanswered questions.
8. Use of calculator or electronic devices is strictly prohibited.
9. Choose the most appropriate answer from the given options.

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1. The area of the region bounded by the curve $y^2 = 4x$ and the line $y = x$ is:
 - (A) $2/3$ sq. units
 - (B) $4/3$ sq. units
 - (C) $8/3$ sq. units
 - (D) $16/3$ sq. units
2. Find the area of the region bounded by the curve $y = \sin x$ and $y = \cos x$ from $x = 0$ to $x = \pi/4$:
 - (A) $\sqrt{2} - 1$ sq. units
 - (B) $\sqrt{2} + 1$ sq. units
 - (C) $2 - \sqrt{2}$ sq. units
 - (D) $1/2$ sq. units
3. The area bounded by the parabola $y = 2 - x^2$ and the line $y = -x$ is:
 - (A) $9/2$ sq. units
 - (B) $3/2$ sq. units
 - (C) $7/2$ sq. units
 - (D) $1/2$ sq. units
4. The area of the region $\{(x, y) : 0 \leq y \leq x^2 + 1, 0 \leq y \leq x + 1, 0 \leq x \leq 2\}$ is:
 - (A) $23/6$ sq. units
 - (B) $15/6$ sq. units
 - (C) $31/6$ sq. units
 - (D) $19/6$ sq. units
5. Find the area of the region bounded by $y^2 = 4x$ and $x^2 = 4y$:
 - (A) $16/3$ sq. units
 - (B) $32/3$ sq. units
 - (C) $8/3$ sq. units
 - (D) $64/3$ sq. units
6. The area of the region bounded by $y = |x + 1|$, $x = -2$, $x = 3$ and the x-axis is:
 - (A) $13/2$ sq. units
 - (B) $15/2$ sq. units
 - (C) $17/2$ sq. units
 - (D) $21/2$ sq. units
7. Area of the region bounded by the curve $y = \sqrt{16 - x^2}$ and $y = 0$ is:
 - (A) 4π sq. units
 - (B) 8π sq. units
 - (C) 16π sq. units
 - (D) 2π sq. units
8. The area of the region bounded by the curve $y = x|x|$, x-axis and the ordinates $x = -1$ and $x = 1$ is:
 - (A) $1/3$ sq. units
 - (B) $2/3$ sq. units
 - (C) 1 sq. unit
 - (D) $4/3$ sq. units
9. The area of the triangle with vertices $(1, 0)$, $(2, 2)$ and $(3, 1)$ using integration is:
 - (A) $3/2$ sq. units
 - (B) $5/2$ sq. units
 - (C) 1 sq. unit
 - (D) 2 sq. units

10. Find the area of the region bounded by $y = x^2$ and $y = |x|$:
- (A) $1/6$ sq. units
 - (B) $1/3$ sq. units
 - (C) $2/3$ sq. units
 - (D) 1 sq. unit
11. The area of the region bounded by the curve $x^2 = 4y$ and the line $x = 4y - 2$ is:
- (A) $9/8$ sq. units
 - (B) $3/4$ sq. units
 - (C) $5/8$ sq. units
 - (D) $7/8$ sq. units
12. Area of the loop of the curve $y^2 = x(x - 1)^2$ is:
- (A) $4/15$ sq. units
 - (B) $8/15$ sq. units
 - (C) $11/15$ sq. units
 - (D) $16/15$ sq. units
13. The area of the region bounded by $y = \log_e(x + e)$, $x = 0$ and $y = 0$ is:
- (A) 1 sq. unit
 - (B) $e - 1$ sq. units
 - (C) e sq. units
 - (D) 2 sq. units
14. The area bounded by $y = x^2$ and $y = 2/(1 + x^2)$ is:
- (A) $\pi - 1/3$ sq. units
 - (B) $\pi - 2/3$ sq. units
 - (C) $2\pi - 1/3$ sq. units
 - (D) $2\pi - 2/3$ sq. units
15. The area bounded by the curve $y = \tan x$, $x = \pi/4$ and the x-axis is:
- (A) $\log_e \sqrt{2}$ sq. units
 - (B) $\log_e 2$ sq. units
 - (C) $1/2$ sq. units
 - (D) $\sqrt{2}$ sq. units

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