CUET Mathematics Test - Set 5

Chapter: Integration and its Applications

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.

1. The value of $\int \frac{dx}{\sqrt{x}+x}$ is:
   (A) $\log|1+\sqrt{x}|+C$
   (B) $2\log|1+\sqrt{x}|+C$
   (C) $\frac{1}{2}\log|1+\sqrt{x}|+C$
   (D) $2\log|x+\sqrt{x}|+C$

2. $\int \frac{e^x(x-1)}{x^2}dx$ is equal to:
   (A) $e^x/x+C$
   (B) e^x/x^2+C
   (C) $(e^x-1)/x+C$
   (D) xe^x+C

3. The value of $\int_0^2 |x^2+2x-3|dx$ is:
   (A) 3
   (B) 4
   (C) 6
   (D) 2

4. The area bounded by the curve $y=\sin x$ between $x=0$ and $x=\pi$ is:
   (A) 2 sq. units
   (B) 1 sq. unit
   (C) 4 sq. units
   (D) π sq. units

5. $\int \frac{\sin^2 x-\cos^2 x}{\sin^2 x\cos^2 x}dx$ is equal to:
   (A) $\tan x+\cot x+C$
   (B) $\tan x+\operatorname{cosec} x+C$
   (C) $-\tan x+\cot x+C$
   (D) $\tan x+\sec x+C$

6. The value of $\int_0^{\pi/2}\log(\tan x)dx$ is:
   (A) $\pi/2$
   (B) $\pi/4$
   (C) 0
   (D) $\log 2$

7. The area of the region bounded by $y^2=x$, $x=1$, $x=4$ and the x-axis in the first quadrant is:
   (A) 14/3 sq. units
   (B) 7/3 sq. units
   (C) 8/3 sq. units
   (D) 4 sq. units

8. If $\int \frac{3x+4}{x^2-x-2}dx = A\log|x-2|+B\log|x+1|+C$, then:
   (A) $A=10/3, B=-1/3$
   (B) $A=10/3, B=1/3$
   (C) $A=-10/3, B=1/3$
   (D) $A=7/3, B=2/3$

9. The value of $\int_0^1 \frac{dx}{e^x+e^{-x}}$ is:
   (A) $\tan^{-1} e-\pi/4$
   (B) $\tan^{-1} e+\pi/4$
   (C) $\log(e+1)$
   (D) $\tan^{-1} e$

10. The area bounded by the circle $x^2 + y^2 = 16$ is:
    (A) 4π sq. units
    (B) 8π sq. units
    (C) 16π sq. units
    (D) 64π sq. units

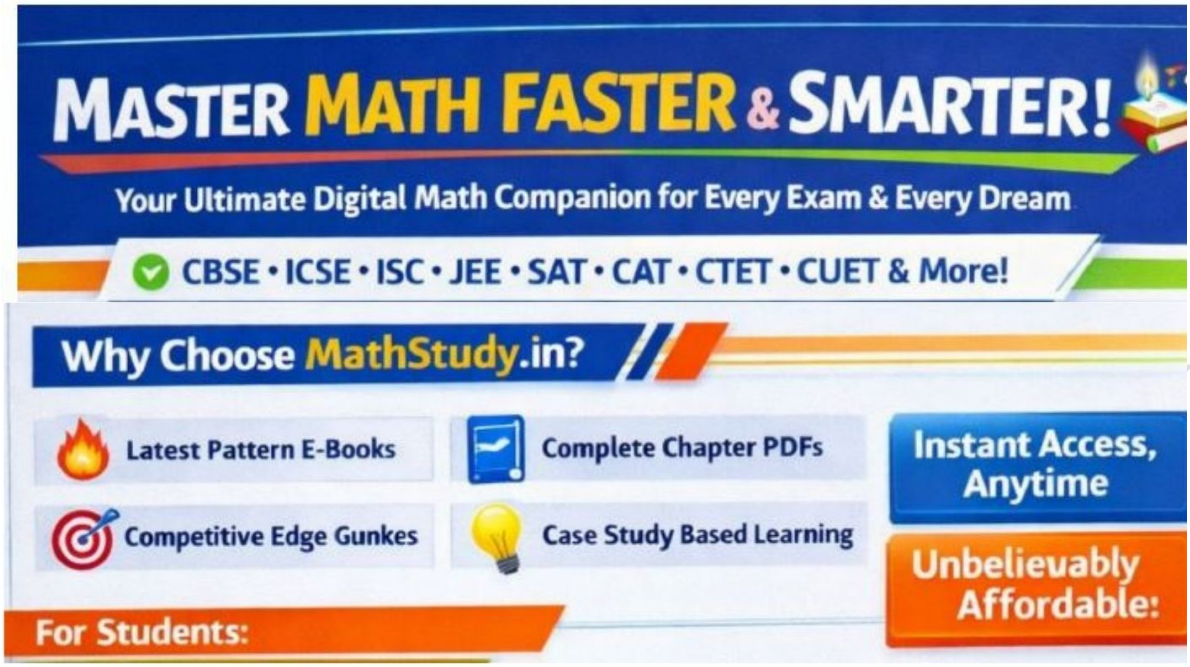
11. $\int \frac{dx}{x \log x \log(\log x)}$ is:
    (A) $\log |\log(\log x)| + C$
    (B) $[\log(\log x)]^2 + C$
    (C) $\log |\log x| + C$
    (D) $\frac{1}{\log x} + C$

12. The value of $\int_{-\pi/2}^{\pi/2} (\sin^7 x + x^3 \cos x) dx$ is:
    (A) π
    (B) $\pi/2$
    (C) 1
    (D) 0

13. Area of the region bounded by $y = \cos x$, $x = 0$, $x = \pi$ and the x-axis is:
    (A) 2 sq. units
    (B) 1 sq. unit
    (C) 0 sq. units
    (D) 4 sq. units

14. $\int \frac{x+3}{(x+4)^2} e^x dx$ is:
    (A) $\frac{e^x}{x+4} + C$
    (B) $\frac{e^x}{(x+4)^2} + C$
    (C) $\frac{-e^x}{x+4} + C$
    (D) $e^x \log |x + 4| + C$

15. The area bounded by $y = 2x - x^2$ and the x-axis is:
    (A) 2/3 sq. units
    (B) 4/3 sq. units
    (C) 1/3 sq. units
    (D) 1 sq. unit



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