UNITY TRAINING
ACADEMY FOR DDCET

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Practice Set 1

Mathematics
INTEGRATION

Topics : Concept of Integration, Working rules and Integral of standard functions, Method of substitution & Integration by parts (simple examples), Definite Integral (simple examples)

DDCET final exam weightage of this topic : 4 Questions (8 Marks)

Total Practice sets of this topic : 8 (sets) x 25 (questions) = 200 Questions

Total Practice tests of this topic : 5 (exams) x 25 (questions) = 125 Questions

Offline / Online during lecture : 4 (lectures) X 50 (Questions) = 200 Question

DDCET 2025

Total 525 Questions to practice this topic

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Section 2:

7. Integration:

1. $\int x^2 dx$ =
(A) 2x + C
(B) x^3 + C
(C) $x^2/2$ + C
(D) $x^3/3$ + C

2. $\int \sin x \, dx$ =
(A) cos x
(B) -cos x
(C) -cos x + C
(D) sec x + C

3. $\int \frac{1}{x} dx$ =
(A) x^2
(B) 1/x + C
(C) x + C
(D) log|x| + C

4. $\int e^x dx$ =
(A) ex + C
(B) e^x + C
(C) log x
(D) x e^x

5. $\int x\, e^x dx$ =
(A) (x - 1)e^x + C
(B) x^2 e^x + C
(C) xe^x + C
(D) e^x

6. $\int \frac{1}{x^2+25} dx$ =
(A) $tan^{-1} x$ + C
(B) $tan^{-1} \frac{x}{5}$ + C
(C) $\frac{1}{5} tan^{-1} \frac{x}{5}$ + C
(D) $\frac{1}{5} tan^{-1} x$ + C

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7. $\int \frac{1}{\sqrt{4-x^2}}\,dx =$

(A) $sin^{-1}\,x + C$

(B) $sin^{-1}\frac{x}{2} + C$

(C) $\frac{1}{2}sin^{-1}\frac{x}{2} + C$

(D) $\frac{1}{2}sin^{-1}\,x + C$

8. $\int \left(x + \frac{1}{x}\right)^2\,dx =$

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

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

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

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

9. $\int \cos(10x - 17)\,dx =$ _____ + C. **[DDCET-2024]**

(A) $10\sin(10x - 17)$

(B) $-10\sin(10x - 17)$

(C) $\frac{1}{10}\sin(10x - 17)$

(D) $-\frac{1}{10}\sin(10x - 17)$

10. $\int_{-1}^{1} \sin^5 x \cdot \cos^8 x\,dx =$ _____. **[DDCET-2024]**

(A) -1

(B) 0

(C) $\frac{1}{2}$

(D) $\frac{1}{4}$

11. $\int_{-2}^{2} x^5 \cos x\,dx =$ _____.

(A) 0

(B) 2

(C) -2

(D) 1

12. $\int_{-a}^{a} \cos x\,dx =$ _____.

(A) 0

(B) $2sina$

(C) $2sinx$

(D) $sina$

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13. $\int_{-a}^{a} x^2 \sin x \, dx$ = _____.
(A) 0
(B) a^3
(C) $2a^2$
(D) 2a

14. $\int e^{x \log a} \, dx$ = _____+ C.
(A) $e^{a \log a}$
(B) $e^{x \log a}$
(C) $a^x / \log a$
(D) log a

15. $\int \sec^2 x - \tan^2 x \, dx$ = _____+ C.
(A) x
(B) 2x
(C) tan2x
(D) 1

16. $\int \tan^2 x \, dx$ = _____+ C.
(A) *2tanx secx*
(B) $tanx - x$
(C) $tanx + x$
(D) secx tanx

17. $\int \sqrt{1 + \sin 2x} \, dx$ = _____+ C.
(A) $sinx - cosx$
(B) $sinx + cosx$
(C) $cosx - sinx$
(D) $cosx + sinx$

18. $\int e^x(cosec^2 x - \cot x)dx$ = _____+ C. **[DDCET-2024]**
(A) $e^x \operatorname{cosec}^2 x$
(B) $-e^x \operatorname{cosec}^2 x$
(C) $e^x \cot x$
(D) $-e^x \cot x$

19. $\int \frac{x-3}{x^2-6x+40} dx$ = _____+ C. **[DDCET-2024]**
(A) $\frac{1}{2} log\,|x^2 - 6x + 40|$
(B) $-\frac{1}{2} log\,|x^2 - 6x + 40|$
(C) $2\,log\,|x^2 - 6x + 40|$

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(D) $-2\,log\,|\,x^2 - 6x + 40|$

20. $\int_{-1}^{1} e^x\,dx$ = _____.

(A) 2e

(B) 1

(C) e-1

(D) 2sinh(1)

21. $\int_{-1}^{1}(x^2 + 1)\,dx$ = _____.

(A) $\frac{8}{3}$

(B) $\frac{3}{8}$

(C) 1

(D) 0

22. $\int e^x sec^2 x\,dx$ = _____+ C.

(A) $e^x\,tan\,x$

(B) $sec^2\,x$

(C) $e^x\,sec\,x$

(D) $tan\,x$

23. $\int \frac{x+1}{x^2+2x+5}dx$ = _____+ C.

(A) $log\,|\,x^2 + 2x + 5|$

(B) $\frac{1}{2}log\,|\,x^2 + 2x + 5|$

(C) $2\,log\,|\,x^2 + 2x + 5|$

(D) $-2\,log\,|\,x^2 + 2x + 5|$

24. $\int \frac{1}{x^2+1}dx$ = _____+ C.

(A) $sin^{-1}\,x$

(B) $cos^{-1}\,x$

(C) $tan^{-1}\,x$

(D) $cot^{-1}\,x$

25. $\int \frac{1}{\sqrt{x^2-a^2}}dx$ = _____+ C.

(A) $log\left|x + \sqrt{x^2 - a^2}\right|$

(B) $cos^{-1}\frac{x}{a}$

(C) $sin^{-1}\frac{x}{a}$

(D) $log\left|a + \sqrt{x^2 - a^2}\right|$

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