

Topic: Chap 7 (Integration)**Important Problems for Practice****For 1 mark****Multiple Choice Question(MCQ)****Write the correct option in the following questions:-**

1. The anti derivative of $\sqrt{x} + \frac{1}{\sqrt{x}}$ equals
 (A) $\frac{1}{3}x^{\frac{1}{3}} + 2x^{\frac{1}{2}} + C$ (B) $\frac{2}{3}x^{\frac{2}{3}} + 2x^2 + C$
 (C) $\frac{2}{3}x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + C$ (D) $\frac{3}{2}x^{\frac{3}{2}} + \frac{1}{2}x^{\frac{1}{2}} + C$
2. If $\frac{d}{dx}f(x) = 3x^2 - \frac{2}{x^3}$ such that $f(-1) = 0$. Then $f(x)$ is
 (A) $x^2 + \frac{1}{x^3} - 1$ (B) $x^2 + \frac{1}{x^3}$
 (C) $x^3 + \frac{1}{x^2} - 1$ (D) $x^3 + \frac{1}{x^2}$
3. If $\frac{d}{dx}f(x) = 4x^3 - \frac{3}{x^4}$ such that $f(2) = 0$. Then $f(x)$ is
 (A) $x^4 + \frac{1}{x^3} - \frac{129}{8}$ (B) $x^3 + \frac{1}{x^4} + \frac{129}{8}$
 (C) $x^4 + \frac{1}{x^3} + \frac{129}{8}$ (D) $x^3 + \frac{1}{x^4} - \frac{129}{8}$
4. $\int \frac{10x^9 + 10^x \log_e 10}{x^{10} + 10^x}$ equals
 (A) $10^x - x^{10} + C$ (B) $10^x + x^{10} + C$
 (C) $(10^x - x^{10} + C)^{-1} + C$ (D) $\log(10^x + x^{10}) + C$
5. $\int \frac{dx}{e^x + e^{-x}}$ is equals to
 (A) $\tan^{-1}(e^x) + C$ (B) $\tan^{-1}(e^{-x}) + C$
 (C) $\log(e^x - e^{-x}) + C$ (D) $\log(e^x + e^{-x}) + C$
6. $\int \frac{\cos 2x}{(\sin x + \cos x)^2} dx$ is equal to
 (A) $\frac{-1}{\sin x + \cos x} + C$ (B) $\log|\sin x + \cos x| + C$
 (C) $\log|\sin x - \cos x| + C$ (D) $\frac{1}{(\sin x + \cos x)^2} + C$
7. $\int \frac{x + \sin x}{1 + \cos x} dx$ is equal to
 (A) $\log|1 + \cos x| + C$ (B) $\log|x + \sin x| + C$ (C) $x - \tan \frac{x}{2} + C$ (D) $x \tan \frac{x}{2} + C$

8. $\int \frac{dx}{\sin^2 x \cos^2 x}$ is equal to
 (A) $\tan x + \cot x + c$ (B) $\tan x - \cot x + c$
 (C) $\tan x \cot x + c$ (D) $\tan x - \cot^2 x + c$
9. $\int \frac{dx}{x^2+2x+2}$ equals
 (A) $x \tan^{-1}(x+1) + C$ (B) $\tan^{-1}(x+1) + C$
 (C) $(x+1) \tan^{-1} x + C$ (D) $\tan^{-1} x + C$
10. $\int \frac{dx}{\sqrt{9x-4x^2}}$ equals
 (A) $\frac{1}{9} \sin^{-1} \left(\frac{9x-8}{8} \right) + C$ (B) $\frac{1}{2} \sin^{-1} \left(\frac{8x-9}{9} \right) + C$
 (C) $\frac{1}{3} \sin^{-1} \left(\frac{9x-8}{8} \right) + C$ (D) $\frac{1}{2} \sin^{-1} \left(\frac{9x-8}{9} \right) + C$
11. $\int \frac{dx}{\sqrt{9-25x^2}} dx =$
 (A) $\sin^{-1} \left(\frac{5x}{3} \right) + c$ (B) $\frac{1}{5} \sin^{-1} \left(\frac{5x}{3} \right) + c$ (C) $\frac{1}{6} \log \left(\frac{3+5x}{3-5x} \right)$ (D) $\frac{1}{30} \log \left(\frac{3+5x}{3-5x} \right)$ (SP 20)
12. $\int e^x(\cos x - \sin x) dx$ is equal to
 (A) $e^x \cos x + c$ (B) $e^x \sin x + c$ (C) $-e^x \cos x + c$ (D) $-e^x \sin x + c$
13. $\int_{a+c}^{b+c} f(x) dx$ is equal to
 (A) $\int_a^b f(x-c) dx$ (B) $\int_a^b f(x+c) dx$
 (C) $\int_a^b f(x) dx$ (D) $\int_{a-c}^{b-c} f(x) dx$
14. If $x = \int_0^y \frac{dt}{\sqrt{1+9t^2}}$ and $\frac{d^2y}{dx^2} = ay$, then a is equal to
 (A) 3 (B) 6 (C) 9 (D) 1
15. $\int_{-1}^1 \frac{x^3+|x|+1}{x^2+2|x|+1} dx$ is equal to
 (A) $\log 2$ (B) $2 \log 2$ (C) $\frac{1}{2} \log 2$ (D) $4 \log 2$
16. If $f(a+b-x) = f(x)$, then $\int_a^b xf(x) dx$ is equal to
 (A) $\frac{a+b}{2} \int_a^b f(b-x) dx$ (B) $\frac{a+b}{2} \int_a^b f(b+x) dx$
 (C) $\frac{b-a}{2} \int_a^b f(x) dx$ (D) $\frac{a+b}{2} \int_a^b f(x) dx$
17. $\int_{-\pi/2}^{\pi/2} \frac{\cos x}{1+e^x} dx$ equals
 (A) 1 (B) 0 (C) -1 (D) $\frac{\pi}{4}$
18. $\int_{-2}^2 \frac{x^2}{1+5^x} dx$ equals
 (A) $\frac{8}{3}$ (B) 0 (C) $-\frac{8}{3}$ (D) None of these

19. The value of $\int_0^1 \tan^{-1} \left(\frac{2x-1}{1+x-x^2} \right) dx$ is

- (A) 1 (B) 0 (C) -1 (D) $\frac{\pi}{4}$

20. $\int_0^1 \tan^{-1}(1-x+x^2) dx$ equals

- (A) $-\log 2$ (B) $\log 2$ (C) 0 (D) None of these

21. If $\int_0^1 \frac{e^t}{1+t} dt = a$, then $\int_0^1 \frac{e^t}{(1+t)^2} dt$ is equal to

- (A) $a - 1 + \frac{e}{2}$ (B) $a + 1 - \frac{e}{2}$ (C) $a - 1 - \frac{e}{2}$ (D) $a + 1 + \frac{e}{2}$

22. If $\int \frac{6e^x - 3e^{-x}}{2e^x + 3e^{-x}} dx = ax + b \log|2e^x + 3e^{-x}|$, then

- (A) $a = -\frac{1}{2}, b = \frac{3}{2}$ (B) $a = \frac{1}{2}, b = \frac{3}{2}$
 (C) $a = \frac{1}{2}, b = -\frac{3}{2}$ (D) $a = -\frac{1}{2}, b = -\frac{3}{2}$

Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
C	D	A	D	A	B	D	B	B	B	B	A	B	C	B	D	A	A	B	B	B	B

For online MCQ test use below link:-

https://docs.google.com/forms/d/e/1FAIpQLSfsKcKx5WeX1kCxupQBP_4t4nDVeMNJ7hadhZTKa5OU7XPnAw/viewform?vc=0&c=0&w=1