

**SAINIK SCHOOL GOPALGANJ**  
**ASSIGNMENT ON CH – 7 (INTEGRALS)**  
**CLASS- 12**

1. The value of the integral  $\int_0^{\pi/4} \sqrt{1 - \sin 2x} dx$  is

- (a)  $\sqrt{2}$                       (b) 1                      (c)  $\sqrt{2} - 1$                       (d)  $\sqrt{2} + 1$ .

2. What is the value of  $\int_0^{\pi} \frac{dx}{1+2\sin^2 x}$  ?

- (a)  $\pi$                       (b)  $\frac{\pi}{3}$                       (c)  $\frac{\pi}{\sqrt{3}}$                       (d)  $\frac{2\pi}{\sqrt{3}}$ .

3.  $\int \frac{2^{x+1} - 5^{x-1}}{10^x} dx =$

- (a)  $\frac{2}{\log 5} 5^x + \frac{1}{5 \log 2} 2^x + c$                       (b)  $-\frac{2}{\log 5} 5^{-x} + \frac{1}{5 \log 2} 2^{-x} + c$

- (c)  $\frac{1}{2 \log 5} 5^{-x} - \frac{1}{5 \log 2} 2^{-x} + c$                       (d) None of these

4.  $\int \frac{x^5}{x^2 + 1} dx$

- (a)  $\frac{x^4}{4} + \frac{x^2}{2} + \tan^{-1} x + c$                       (b)  $\frac{x^4}{4} - \frac{x^2}{2} + \frac{1}{2} \log(x^2 + 1) + c$

- (c)  $\frac{x^4}{4} + \frac{x^3}{2} + \tan^{-1} x + c$                       (d)  $\frac{x^4}{4} + \frac{x^3}{2} - \tan^{-1} x + c$

5.  $\int \frac{(x^4 - x)^{1/4}}{x^5} dx =$

- (a)  $\frac{1}{15} \left(1 - \frac{1}{x^3}\right)^{5/4} + c$                       (b)  $\frac{4}{15} \left(1 - \frac{1}{x^3}\right)^{5/4} + c$

- (c)  $\frac{1}{4} \left(1 - \frac{1}{x^3}\right)^{5/4} + c$                       (d) None of these.

6.  $\int \frac{dx}{a^2 \sin^2 x + b^2 \cos^2 x} =$

(a)  $\frac{1}{ab} \tan^{-1}\left(\frac{a \tan x}{b}\right) + c$

(b)  $\frac{a}{b} \tan^{-1}\left(\frac{a \tan x}{b}\right) + c$

(c)  $\frac{b}{a} \tan^{-1}\left(\frac{b \tan x}{a}\right) + c$

(d) None of these

7.  $\int (x+1)\sqrt{x+2} dx$

(a)  $\frac{1}{5}(x+2)^{5/2} + \frac{1}{3}(x+2)^{3/2} + c$

(b)  $\frac{2}{5}(x+2)^{5/2} + \frac{2}{3}(x+2)^{3/2} + c$

(c)  $\frac{1}{5}(x+2)^{5/2} + \frac{1}{3}(x+2)^{3/2} + c$

(d) None of these

8..  $\int \frac{dx}{(x+2)\sqrt{x+1}} =$

(a)  $\tan^{-1}(\sqrt{x+1}) + c$

(b)  $2 \tan^{-1}(\sqrt{x+1}) + c$

(c)  $-2 \tan^{-1}(\sqrt{x+1}) + c$

(d) None of these

9..  $\int \frac{dx}{(x+1)\sqrt{x^2-1}} =$

(a)  $\sqrt{\frac{x+1}{x-1}} + c$

(b)  $2\sqrt{\frac{x-1}{x+1}} + c$

(c)  $\sqrt{\frac{x-1}{x+1}} + c$

(d) None of these

10.  $\int \frac{dx}{x^2\sqrt{1+x^2}} =$

(a)  $\frac{\sqrt{1+x^2}}{x} + c$

(b)  $\sqrt{1+x^2} + c$

(c)  $-\frac{\sqrt{1+x^2}}{x} + c$

(d)  $-\sqrt{1+x^2} + c$

11. Find  $\int \frac{dx}{(x+1)^{1/3} + (x+1)^{1/2}} =$

12. Find  $\int \frac{dx}{1 - \cos x - \sin x} =$

13 Find  $\int \frac{dx}{\sin^4 x + \cos^4 x} =$

14.. Find  $\int \frac{dx}{\sin x + \sqrt{3} \cos x} =$

15. Find  $\int_0^{\pi} \frac{dx}{1 + \sin x} =$

16. Find  $\int_0^{\pi/2} \frac{\sin x \cos x}{1 + \sin^4 x} dx =$

17.. Find  $\int_{-\pi/2}^{\pi/2} \frac{\cos x dx}{1 + e^x} =$

18. Find  $\int_0^{\pi} \log \sin x dx =$

19. Find  $\int e^{3 \log x} (x^4 + 1)^{-1} dx =$

20 Find  $\int_{-1}^1 \log (x + \sqrt{x^2 + 1}) dx =$