XII
ASSIGNMENT -1
INDEFINITE INTEGRATIONS

1. $\int \frac{1+\tan x}{1-\tan x}.dx$
2. $\int \frac{x^4}{x^2+1}.dx$
3. $\int \frac{2x}{\sqrt{1-x^2-x^4}}.dx$
4. $\int \sqrt{\frac{1+x}{x}}.dx$
5. $\int \sqrt{\frac{a-x}{a+x}}.dx$
6. $\int \frac{1}{a^2 sin^2 x+b^2 cos^2 x}.dx$
7. $\int \frac{1}{1+\cot x}.dx$
8. $\int \frac{1}{3+2\sin x+\cos x}.dx$
9. $\int \frac{sin^{-1}x}{(1-x^2)^{3/2}}.dx$
10. $\int (sin^{-1}x)^2.dx$
11. $\int \frac{(2-x)e^x}{(1-x)^2}.dx$
12. $\int \left(e^{x\log a}+e^{a\log x}+e^{a\log a}\right).dx$
13. $\int 5^{5^{5^x}}.5^{5^x}.5^x.dx$
14. $\int \frac{dx}{e^x+e^{-x}} =$

    a. a) $\tan^{-1}(e^x)+c$ b) $\tan^{-1}(e^{-x})+c$

    c) $\log(e^x-e^{-x})+c$ d) $\log(e^x+e^{-x})+c$

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

    A) $\tan^{-1}x+\frac{x^4}{4}$ b) $\frac{x^3}{3}+\tan^{-1}x$

c) $\log(x^2+1)$ d) $\frac{x^3}{2}+\frac{1}{2}log\left|\frac{x+1}{x-1}\right|$

16. $\int \sqrt{1-\cos x}\,dx$ =

a) $-2\sqrt{2}\cos\left(\frac{x}{2}\right)$ b) $-\sqrt{2}\cos\left(\frac{x}{2}\right)$

c) $-\frac{1}{2}\cos\left(\frac{x}{2}\right)$ d) $2\cos\left(\frac{\sqrt{2}x}{2}\right)$

17. $\int \sin^{-1}(\cos x)\,dx$

a) $\frac{\pi x}{2}$ b) $\frac{\pi x^2}{2}$

c) $\frac{\pi x-x^2}{2}$ d) $\frac{\pi x+x^2}{2}$

18. $\int \frac{dx}{\tan x+\cot x}$ =?

a) $\frac{\cos 2x}{4}+c$ b) $\frac{\sin 2x}{4}+c$

c) $\frac{-\sin 2x}{4}+c$ d) $-\frac{\cos 2x}{4}+c$

19. If $f'(x)=x^2+5\ and\ f(0)=-1\ then\ f(x)=?$

$a)\ x^3+5x-1$ b) x^3+5x+1

c) $\frac{1}{3}x^3+5x-1$ d) $\frac{1}{3}x^3+5x+1$

20. $\int \frac{\cos 2x+2sin^2 x}{cos^2 x}dx$ =?

a) $2\sec x+c$ b) $2\ \tan x+c$

c) $\tan x+c$ d) None of these