Class..12th.. Topic ..Integration (Revision)..... M.Marks..... Time.....

Q1. $\int \sin x \sqrt{1-\cos 2x}\, dx$ [∵ Ans $\frac{1}{\sqrt{2}}(x-\sin x\cos x)+c$]

Q2. $\int \sqrt{(1+\sin\frac{x}{2})}\, dx$ [∵ Ans $4\left[\sin\frac{x}{4}-\cos\frac{x}{4}\right]+c$]

Q3. $\int \frac{\sin^6 x+\cos^6 x}{\sin^2 x\cos^2 x}\, dx$ [∵ Ans $\tan x-\cot x-3x$]

Q4. $\int \frac{x^4}{1+x^2}\, dx$ [∵ $\frac{x^3}{3}-x+\tan^{-1}x+c$]

Q5. $\int \frac{\sin^2(\log x)}{x}\, dx$ [∵ $\frac{1}{2}\left[\log x-\frac{1}{2}\sin(2\log x)\right]$

Q6. $\int \frac{\sec^4 x}{\sqrt{\tan x}}\, dx$ [∵ $2\left[\sqrt{\tan x}+\frac{1}{5}(\tan x)^{5/2}+c\right]$

Q7. $\int \frac{dx}{x\sqrt{x^6-1}}$ [∵ $\frac{1}{3}\sec^{-1}x^3+c$]

Very Imp Q8. $\int \frac{1}{1+\cot x}\, dx$ [∵ $\frac{x}{2}-\frac{1}{2}\log(\sin x+\cos x)$]

Q9. $\int \frac{\sqrt{\tan x}}{\sin x\cos x}\, dx$ [∵ $2\sqrt{\tan x}+c$]

Q10. $\int \frac{e^x+e^{-x}}{e^x-e^{-x}}\, dx$ [∵ $\log|e^x-e^{-x}|+c$]

Q11. $\int \frac{2\sin\theta\cos\theta}{\sin^4\theta+\cos^4\theta}\, d\theta$ [∵ $\tan^{-1}(\tan^2\theta)+c$]

Q12. $\int \tan x\tan 2x\tan 3x\, dx$ [∵ $\frac{1}{3}\log|\sec 3x|-\frac{1}{2}\log|\sec 2x|-\log|\sec x|+c$]

Q13. $\int \frac{dx}{\sqrt{1+\sin x}}$ [∵ $\sqrt{2}\log\left|\tan\left(\frac{\pi}{8}+\frac{x}{4}\right)\right|+c$

Q14. $\int \tan^3 x\,dx$ $\left[\because \frac{1}{2}\tan^2 x - \log|\sec x| + c\right]$

Q15. $\int \frac{dx}{\sin x \cos^3 x}$ $\left[\because \frac{1}{2}\tan^2 x + \log_e|\tan x| + c\right]$

Q16. $\int x^2 \sin^{-1} x\,dx$ $\left[\because \frac{1}{3}x^3 \sin^{-1} x + \frac{1}{3}\sqrt{1-x^2} - \frac{1}{9}(1-x^2)^{3/2} + c\right]$

Q17. $\int \log\left(x+\sqrt{a^2+x^2}\right)dx$ $\left[\because x\log\left(x+\sqrt{a^2+x^2}\right) - \sqrt{a^2+x^2}\right]$

Q18. $\int \frac{x \sin^{-1} x}{\sqrt{1-x^2}}dx$ $\left[\because -\sqrt{1-x^2}\sin^{-1} x + x + c\right]$

Q19. $\int \frac{x}{1+\cos x}dx$ $\left[\because \frac{x(1-\cos x)}{(1+\cos x)(1-\cos x)}\right.$ Hint Ans $-x\cot x + \log\sin x +$ $\left.x\operatorname{cosec} x - \log\tan\left(\frac{x}{2}\right) + c\right]$

Q20. $\int \sin\sqrt{x}\,dx$ $\left[\because 2\left[-\sqrt{x}\cos\sqrt{x} + \sin\sqrt{x}\right] + c\right]$

Q21. $\int \frac{\log(\sec^{-1} x)}{x\sqrt{x^2-1}}dx$ $\left[\because \sec^{-1} x\left[\log(\sec^{-1} x) - 1\right] + c\right]$

Q22. $\int x^2 e^{x^3}\cos x^3\,dx$ $\left[\because \frac{1}{6}e^{x^3}(\sin x^3 + \cos x^3) + c\right]$

Q23. $\int e^x(\cot x - \operatorname{cosec}^2 x)dx$ $\left[\because e^x \cot x + c\right]$

Q24. $\int e^x\left(\frac{1+\sin x}{1+\cos x}\right)dx$ $\left[\because e^x \tan x/2 + c\right]$

Q25. $\int \frac{x+\sin x}{1+\cos x}dx$ $\left[\because x\tan\frac{x}{2} + c\right]$

Q26. $\int \frac{x^2+1}{x^2-1}dx$ $\left[\because x + \log\left|\frac{x-1}{x+1}\right| + c\right]$

Q27. $\int \frac{d\theta}{\sin^4\theta + \cos^4\theta}$ $\left[\because \frac{1}{\sqrt{2}}\tan^{-1}\left[\frac{\tan^2\theta - 1}{\sqrt{2}\tan\theta}\right]\right.$