EXERCISE – II MULTIPLE CORRECT (OBJECTIVE QUESTIONS)

1. If $\int e^{3x}\cos 4x\ dx = e^{3x}(A\sin 4x + B\cos 4x) + c$ then :

(A) 4A=3B (B) 2A=3B (C) 3A=4B (D) 4B+3A=1

2. $\int \frac{dx}{5+4\cos x} = I\tan^{-1}\left(m\tan\frac{x}{2}\right) + C$ then

(A) I=2/3 (B) m = 1/3 (C) I = 1/3 (D) m = 2/3

3. $\int \frac{x^2+\cos^2 x}{1+x^2}\ \text{cosec}^2\ x\ dx$ is equal to :

(A) $\cot x - \cot^{-1} x + c$ (B) $c - \cot x + \cot^{-1} x$

(C) $-\tan^{-1} x - \frac{\text{cosec}x}{\sec x} + c$ (D) $-e^{\ell n\tan^{-1}x} - \cot x + c$

4. $\int \frac{\sin 2x}{\sin^4 x+\cos^4 x}\ dx$ is equal to

(A) $\cot^{-1}(\cot^2 x) + c$ (B) $-\cot^{-1}(\tan^2 x) + c$
(C) $\tan^{-1}(\tan^2 x) + c$ (D) $-\tan^{-1}(\cos 2x) + c$

5. $\int \frac{dx}{\sqrt{x-x^2}}$ equal is :

(A) $2\sin^{-1}\sqrt{x} + c$ (B) $\sin^{-1}(2x-1) + c$

(C) $c - 2\cos^{-1}(2x-1)$ (D) $\cos^{-1} 2\sqrt{x-x^2} + c$

6. $\int \frac{\ell n\left(\frac{x-1}{x+1}\right)}{x^2-1}\ dx$ equal

(A) $\frac{1}{2}\ \ell n^2\ \frac{x-1}{x+1} + c$ (B) $\frac{1}{4}\ \ell n^2\ \frac{x-1}{x+1} + c$

(C) $\frac{1}{2}\ \ell n^2\ \frac{x+1}{x-1} + c$ (D) $\frac{1}{4}\ \ell n^2\ \frac{x+1}{x-1} + c$

7. $\int \frac{\ell n(\tan x)}{\sin x\cos x}dx$ equal :

(A) $\frac{1}{2}\ell n^2(\cot x) + c$ (B) $\frac{1}{2}\ell n^2(\sec x) + c$

(C) $\frac{1}{2}\ell n^2(\sin x\sec x) + c$

(D) $\frac{1}{2}\ell n^2(\cos x\ \text{cosec}\ x) + c$

8. $\int \frac{(x-1)dx}{x^2\sqrt{2x^2-2x+1}}$ is equal to $\frac{\sqrt{f(x)}}{g(x)} + c$ then

(A) $f(x) = 2x^2 - 2x + 1$ (B) $g(x) = x + 1$

(C) $g(x) = x$ (D) $f(x) = \sqrt{2x^2-2x}$

9. The value of the integral $\int \frac{\ell n(x+1) - \ell n\ x}{x(x+1)}\ dx$ is

(A) $-\frac{1}{2}[\ell n\ (x+1)]^2 - \frac{1}{2}\ (\ell n\ x)^2 + \ell n(x+1)\ \ell n\ x + c$

(B) $-[\{\ell n\ (x+1)\}]^2 - (\ell n\ x)^2] + \ell n(x+1)\cdot\ell n\ x + c$

(C) $-\frac{1}{2}\ [\ell n\ (1+1/x)]^2 + c$ (D) None of these