



General Instructions:

- 1) Questions 1 to 4 carries 1 mark each.
- 2) Questions 5 to 8 carries 2 marks each.
- 3) Questions 9 and 10 carries 4 marks each.

SECTION A		
1.	Evaluate: $\int \frac{\sin^2 x - \cos^2 x}{\sin^2 x \cos^2 x} dx$ (a) $\tan x - \cot x + C$ (b) $-\tan x + \cot x + C$ (c) $\tan x + \cot x + C$ (d) $-\tan x - \cot x + C$	1
2.	The value of $\int_0^a \frac{\sqrt{x}}{\sqrt{x} + \sqrt{a-x}} dx$ is: (a) $a/2$ (b) a (c) a^2 (d) 0	1
3.	The value of $\int \frac{e^x}{e^x(e^x+1)} dx$ is: (a) $\log \left \frac{e^x}{e^x+1} \right + C$ (b) $\log 1 - e^{-x} + C$ (c) $\log \log \frac{1}{e^x} + C$ (d) $\log e^x + 1 + C$	1
4.	Evaluate $\int_0^{\frac{\pi}{2}} \frac{\sin^{\frac{2}{5}} x}{\sin^{\frac{2}{5}} x + \cos^{\frac{2}{5}} x} dx$ a) 1 b) 0 c) $\frac{\pi}{2}$ d) $\frac{\pi}{4}$	1
SECTION B		
5.	Evaluate $\int \frac{1}{x^2+49} dx$ ANS) $\frac{1}{7} \tan^{-1}\left(\frac{x}{7}\right)$	2
6.	Evaluate $\int \cot x \log \sin x dx$ ANS) $\left(\frac{\log \sin x}{2}\right)^2 + c$ OR	2

	Evaluate $\int e^x \sin x \, dx$	
7.	Evaluate $\int e^x \left(\frac{1}{x} - \frac{1}{x^2} \right) dx$ ANS) $e^x/x + c$	2
8.	Evaluate $\int_2^5 x - 4 \, dx$ ANS) $\int_2^4 4 - x + \int_4^5 x - 4 \, dx = 5/2$	2
SECTION C		
9.	Evaluate : $\int (x \tan^{-1} x) dx$ ANS) $\frac{x^2}{2} \tan^{-1} x - \frac{x}{2} + \tan^{-1} x + c$ OR Evaluate $\int_1^4 \{ x - 1 + x - 2 + x - 3 \} dx$	4
10.	Evaluate: $\int \frac{3x+1}{(x-1)^2(x+3)} dx$ ANS) $-1/2 \log(x+3) + 1/2 \log(x-1) - \frac{1}{x-1} + c$	4