

Student Name;---		Roll No.....	Date...../...../.....
Class ➤ 2 nd year		Subject : Mathematics ➤ ریاضی	➤ Chapter # 3
T- Marks : 30	➤ Time : 40 mints	Obtain Marks	

Q # 1	Circle the correct option	1x7=7
1	$\int \frac{a}{x} dx =$	
a	$ax + c$	b $a \ln x + c$
		c $\frac{-a}{x^2} + c$
		d $\frac{1}{a} \ln x + c$
2	$\int \sin 5x dx =$	
a	$\frac{-1}{a} \cos x$	b $\frac{-1}{5} \cos 5x + c$
		c $\frac{1}{5} \sin x + c$
		d $\frac{1}{5} \cos 5x + c$
3	$\int a^x dx = ;$	
a	$\frac{\ln a}{a^x} + c$	b $\frac{ax}{\ln a} + c$
		c $\frac{1}{a^x \ln a} + c$
		d $a^x \ln a + c$
4	$\int \sec^2 x dx = ;$	
a	$\cot x + c$	b $\tan x + c$
		c $2 \sec x + c$
		d $\frac{1}{\cos^2 x} + c$
5	$\int_{-\pi}^{\pi} \sin x dx = ;$	
a	2π	b 0
		c 1
		d $\cos \pi$
6	$\int \frac{2}{x+2} dx = ;$	
a	$\ln x+2 $	b $\ln x+2 ^2$
		c $\frac{1}{\ln x+2 }$
		d 2
7	$\int \tan x dx = ;$	
a	$\sec^2 x$	b $\sec x \tan x$
		c $\ln \sec x$
		d $\ln \cos x$
Q # 2	Write short answer of following question.	2x7=14
i	Solve the differential equation $y dx + x dy = 0$	
ii	Evaluate $\int \tan^2 x dx ;$	
iii	Evaluate $\int \ln x dx ;$	
iv	Evaluate $\int_0^{\pi} x \cos x dx ;$	
v	Solve the differential equation $\sec x + \tan y \frac{dy}{dx} = 0 ;$	
vi	Evaluate the given integral $\int \sec^4 x dx ;$	
vii	Find the antiderivative of $x \ln x ;$	
Q # 3	Write detail answer of these questions.	4+5=9

- a. Evaluate $\int_0^{\pi} \cos^4 t . dt$
- b. Evaluate the integral. $\int \frac{3-x}{1-x-6x^2} dx.$