



# SHIKSHA CLASSES

## BOARD QUESTION PAPER

Subject : Maths- II

Topic: 4. Definite Integration

Total Marks : 20

Class : XII

Time : 1 Hr.

### Section A

Q.1 : Choose the correct option :

4

i)  $\int_0^{\pi/2} \frac{\sqrt[3]{\sec x}}{\sqrt[3]{\sec x} + \sqrt[3]{\cos x}} dx =$

a)  $\frac{\pi}{2}$

b)  $\frac{\pi}{3}$

c)  $\frac{\pi}{4}$

d)  $\frac{\pi}{6}$

ii)  $\int_{\pi/3}^{\pi/2} \frac{\sqrt{1+\cos x}}{(1-\cos x)^{5/2}} dx = \dots$

a)  $\frac{5}{2}$

b)  $\frac{3}{2}$

c)  $\frac{1}{2}$

d)  $\frac{2}{5}$

Q.2 : Solve the following questions:

2

i) Evaluate  $\int_{\pi/6}^{\pi/3} \cos x \cdot dx$

ii) Evaluate  $\int_0^4 x^2 \cdot dx$

### Section B

: Solve the following : (ANY2)

4

Q.3 : Evaluate  $\int_1^3 \frac{\sec^2(\log x)}{x} dx$

Q.4 : Evaluate  $\int_0^1 \frac{x^2 - 5}{x^2 + 1} dx$

Q.5 : Evaluate  $\int_{-1}^5 (2x + 3).dx$

### Section C

: Answer the following : (ANY 2)

6

Q.6 : Evaluate  $\int_0^{\pi/2} \cos^2 x dx$

Q.7 : Evaluate  $\int_1^{\pi/2} [\sin(\log x) + \cos(\log x)]dx$

Q.8 : Evaluate  $\int_1^3 x^2 \log x dx$

### Section D

: Answer the following : (ANY 1)

4

Q.9 : If  $\int_0^{\pi/3} \frac{\cos x}{3 + 4 \sin x} dx = K \log \left( \frac{3 + 2\sqrt{3}}{3} \right)$  then find value of K.

Q.10: Prove that  $\int_{-a}^a f(x)dx = 2 \int_0^a f(x)dx$  if f is even function  
 $= 0$  if f is odd function

\* \* \*

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