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

a) $\frac{\pi}{2}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{6}$

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

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 $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \cos x.dx$

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

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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