HERAMB COACHING CLASSES

Yogeshwar Towers, Katemanivali, Kalyan (East)

XII/Mathematics/11/12/17	Marks:30	Duration:1Hour
O.1. ATTEMPT ANY 4:		(20)

Evaluate the following definite integrals:

1.
$$\int_{0}^{1} x \tan^{-1} x \, dx$$

3.
$$\int_{0}^{\pi/2} \sqrt{\sin \theta} .\cos^{5} \theta \, d\theta$$

5.
$$\int_{0}^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} \, dx$$

7.
$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \log\left(\frac{2 - \sin x}{2 + \sin x}\right)$$

2. If
$$\int_{0}^{k} \frac{1}{2+8x^{2}} dx = \frac{\pi}{16}$$
, find the value of 'k'
4. $\int_{0}^{\pi/2} \frac{\cos x}{(1+\sin x)(2+\sin x)} dx$
6. $\int_{0}^{3} x^{2} \cdot \sqrt{3-x} dx$
8. $\int_{0}^{\pi/2} \log \sin x dx$

(10)

Q.2. ATTEMPT ANY 2:

1. Find the area of region bounded by the following curves, the X-axis and the given lines:

Find the area of circle $x^2+y^2=25$

2. Find the volume of solid generated by rotating the area bounded by $x^2+y^2=36$ and the lines x = 0, x = 3about X-axis.

3. Find the volume of solid generated by revolving the region bounded by

 $y^2 = x$ and x = 1 about the X-axis.

Professor Vishwanathan Iyer's

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Q.1. ATTEMPT ANY 4:		(20)
Evaluate the following definite integrals:		

Evaluate the following definite integrals:

1. $\int_0^1 x \tan^{-1} x dx$	2. If $\int_{0}^{k} \frac{1}{2+8x^{2}} dx = \frac{\pi}{16}$, find the value of 'k'
3. $\int_0^{\pi/2} \sqrt{\sin\theta} .\cos^5\theta d\theta$	4. $\int_0^{\pi/2} \frac{\cos x}{(1+\sin x)(2+\sin x)} dx$
$5. \int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$	6. $\int_0^3 x^2 \cdot \sqrt{3-x} dx$
7. $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} log\left(\frac{2-sinx}{2+sinx}\right)$	8. $\int_0^{\pi/2} \log sinx dx$

Q.2. ATTEMPT ANY 2:

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