

HERAMB COACHING CLASSES

Yogeshwar Towers, Katemanivali, Kalyan (East)

XI/Mathematics

Marks: 30

Duration: 1 Hour

Date: 17/10/2018

ATTEMPT ANY 6:

- 1) If $2\cos^2\theta + 3\cos\theta = 2$, then find $\cos\theta$.
- 2) Evaluate: $\sin^2 0 + \sin^2 \left(\frac{\pi}{6}\right)^e + \sin^2 \left(\frac{\pi}{3}\right)^e + \sin^2 \left(\frac{\pi}{2}\right)^e$.
- 3) Evaluate: $4 \cdot \cot 45^\circ - \sec^2 60^\circ + \sin^2 30^\circ$.
- 4) Find the trigonometric functions of angle in standard position whose terminal arm passes through $(-7, -24)$.
- 5) If $\frac{\sin A}{3} = \frac{\sin B}{4} = \frac{1}{5}$, where A and B are angles in the second quadrant, then find the value of $4 \cos A + 3 \cos B$.
- 6) Prove the following: $\sqrt{\frac{\sec x + 1}{\sec x - 1}} = \frac{1}{\operatorname{cosec} x - \cot x}$.
- 7) If $x = r \cdot \cos\theta \cdot \cos\phi$, $y = r \cdot \cos\theta \cdot \sin\phi$, $z = r \cdot \sin\theta$, then show that $x^2 + y^2 + z^2 = r^2$.
- 8) Prove the following: $\sqrt{2} \cdot \sin\left(\frac{\pi}{4} + \theta\right) = \cos\theta + \sin\theta$.
- 9) Prove the following: $\tan\left(\frac{\pi}{4} + \theta\right) = \frac{1 + \tan\theta}{1 - \tan\theta}$
- 10) Prove that: If $2\sin\left(\theta + \frac{\pi}{3}\right) = \cos\left(\theta - \frac{\pi}{6}\right)$, then $\tan\theta + \sqrt{3} = 0$