

Std : XI

SLIP TEST

Marks : 40

Date : 04.09.2019

MATHS

Time : 1.00 hr

(10 x 1 = 10)

I. Choose the correct answer:

- If $\cos 28^\circ + \sin 28^\circ = k^3$, then $\cos 17^\circ$ is equal to
1) $\frac{k^3}{\sqrt{2}}$ 2) $-\frac{k^3}{\sqrt{2}}$ 3) $\pm \frac{k^3}{\sqrt{2}}$ 4) $-\frac{k^3}{\sqrt{3}}$
- If $\pi < 2\theta < \frac{3\pi}{2}$, then $\sqrt{2 + \sqrt{2 + 2 \cos 4\theta}}$ equal to
1) $-2 \cos \theta$ 2) $-2 \sin \theta$ 3) $2 \cos \theta$ 4) $2 \sin \theta$
- $\cos 1^\circ + \cos 2^\circ + \cos 3^\circ + \dots + \cos 179^\circ =$
1) 0 2) 1 3) -1 4) 89
- Which of the following is not true?
1) $\sin \theta = -\frac{3}{4}$ 2) $\cos \theta = -1$ 3) $\tan \theta = 25$ 4) $\sec \theta = \frac{1}{4}$
- $\cos 2\theta \cos 2\phi + \sin^2(\theta - \phi) - \sin^2(\theta + \phi)$ is equal to
1) $\sin 2(\theta + \phi)$ 2) $\cos 2(\theta + \phi)$ 3) $\sin 2(\theta - \phi)$ 4) $\cos 2(\theta - \phi)$
- If $f(\theta) = |\sin \theta| + |\cos \theta|$, $\theta \in R$, then $f(\theta)$ is in the interval
1) $[0, 2]$ 2) $[1, \sqrt{2}]$ 3) $[1, 2]$ 4) $[0, 1]$
- The triangle of maximum area with constant perimeter 12 m
1) is an equilateral triangle with side 4m 2) is an isosceles triangle with sides 2m, 5m, 5m
3) is a triangle with sides 3m, 4m, 5m 4) Does not exist
- $\frac{\cos 6x + 6 \cos 4x + 15 \cos 2x + 10}{\cos 5x + 5 \cos 3x + 10 \cos x}$ is equal to
1) $\cos 2x$ 2) $\cos x$ 3) $\cos 3x$ 4) $2 \cos x$



9. In a $\triangle ABC$, if (i) $\sin \frac{A}{2} \sin \frac{B}{2} \sin \frac{C}{2} > 0$ (ii) $\sin A \sin B \sin C > 0$ then
 1) Both (i) and (ii) are true. 2) only (i) is true
 3) only (ii) is true 4) neither (i) nor (ii) is true
10. A wheel is spinning at 2 radians/second. How many seconds will it take to make 10 complete rotations?
 1) 10π seconds 2) 20π seconds 3) 5π seconds 4) 15π seconds

(3 x 2 = 6.)

II. Answer all the questions:

11. Find the principal solution and general solutions of the following $\sin \theta = -\frac{1}{\sqrt{2}}$
 12. Find the principal solution and general solutions of the following $\cot \theta = \sqrt{3}$
 13. Find the general solution of $\sec \theta = -2$

(3 x 3 = 9)

III. Answer all the questions:

14. Solve $3\cos^2 \theta = \sin^2 \theta$
 15. Find the general solution of $\sin \theta = -\frac{\sqrt{3}}{2}$
 16. Solve the following equations for which solutions lies in the interval $0^\circ \leq \theta < 360^\circ$

$\sin^4 x = \sin^2 x$
 (3 x 5 = 15)

IV. Answer all the questions:

17. Solve $\sqrt{3} \tan^2 \theta + (\sqrt{3} - 1) \tan \theta - 1 = 0$
 18. If $x + y + z = xyz$, then prove that $\frac{2x}{1-x^2} + \frac{2y}{1-y^2} + \frac{2z}{1-z^2} = \frac{2x}{1-x^2} \frac{2y}{1-y^2} \frac{2z}{1-z^2}$
 19. If $A + B + C = 180^\circ$, prove that $\tan \frac{A}{2} \tan \frac{B}{2} + \tan \frac{B}{2} \tan \frac{C}{2} + \tan \frac{C}{2} \tan \frac{A}{2} = 1$