DPP-2

Trigonometry

Q.1 The length of a pendulum is 8m while the pendulum swings through 1.5 rad, find the length of the arc through which the tip of the pendulum passes

(a) 8m (b) 9m (c) 12m (d) N.O.T

Q.2 $\frac{4}{3}\cot^2 30° + 3\sin^2 60° - 2\operatorname{cosec}^2 60° - \frac{3}{4}\tan^2 30°$

(a) $\frac{10}{3}$ (b) $\frac{11}{3}$ (c) 4 (d) N.O.T

Q.3 if A is in the 4th quadrant and $\cos A = \frac{5}{13}$, find the value of $\frac{13\sin A + 5\sec A}{5\tan A + 6\operatorname{cosec} A}$

(a) $-\frac{2}{37}$ (b) $-\frac{3}{27}$ (c) $\frac{2}{37}$ (d) N.O.T

Q.4 if $A+B = 45°$, find the value of

$\tan A + \tan B + \tan A \tan B$

(a) -1 (b) $\frac{1}{2}$ (c) $\sqrt{3}$ (d) 1

Q.5 $\sin^2(120°-A) + \sin^2 A + \sin^2(120°+A) = ?$

(a) $\frac{2}{3}$ (b) $\frac{3}{2}$ (c) $\frac{5}{2}$ (d) $\frac{\sqrt{3}}{2}$

Q.6 if $\cos(\alpha+\beta) = \frac{4}{5}$ and $\sin(\alpha-\beta) = \frac{5}{13}$ & α, β lies b/w $0°$ & $45°$, find the value of $\tan 2\alpha$?

(a) $\frac{56}{63}$ (b) $\frac{56}{33}$ (c) $\frac{25}{33}$ (d) $\frac{65}{63}$

Q.7 find the Maximum & Minimum Value of $7\cos\theta + 24\sin\theta$?

Q.8 $\cos 20° \cdot \cos 40° \cdot \cos 60° \cdot \cos 80°$ is

(a) $\frac{1}{16}$ (b) $\frac{1}{50}$ (c) $\frac{1}{24}$ (d) $\frac{1}{25}$

Q.9 $\cos 20° + \cos 100° + \cos 140° = ?$

Q.10 if $2\cos\theta = x + \frac{1}{x}$, find $2\cos 3\theta$

(a) $x^3 + \frac{1}{x^3}$ (b) $x^2 + \frac{1}{x^2}$ (c) $x^3 - \frac{1}{x^3}$ (d) $\sqrt{x + \frac{1}{x}}$

Q.11 if $\sin\theta + \operatorname{cosec}\theta = 2$, then value of $\sin^{10}\theta + \operatorname{cosec}^{10}\theta$ is

(a) 2 (b) 2^4 (c) 2^8 (d) N·O·T

Q.12 the value of $\tan\frac{\pi}{16} + 2\tan\frac{\pi}{8} + 4$ is equals to

(a) $\cot\frac{\pi}{2}$ (b) $\cot\frac{\pi}{4}$ (c) $\cot\frac{\pi}{4} - 4$ (d) N·O·T

Q.13 the Numerical Value of $\sin\frac{\pi}{18}\sin\frac{5\pi}{18}\sin\frac{7\pi}{18}$ is

(a) 1 (b) $\frac{1}{8}$ (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

Q.14 if $\sec 2\theta = p + \tan 2\theta$, then the Value of $\sin^2\theta$ in terms of p is given by

(a) $\frac{(p-1)^2}{2(p^2+1)}$ (b) $\frac{1}{2}\left(\frac{p-1}{p+1}\right)^2$

(c) $\frac{p^2-1}{2(p^2+1)}$ (d) $\frac{p^2-1}{2(p+1)^2}$

Q.15 The least (min.) Value of

$\cos^2\theta - 6\sin\theta\cos\theta + 3\sin^2\theta + 2$ is

(a) $4+\sqrt{10}$ (b) $4-\sqrt{10}$ (c) 0 (d) N.O.T

Q.16 The value of $\tan 20^\circ + 2\tan 50^\circ - \tan 70^\circ$ is

(a) 1 (b) 0 (c) $\tan 50^\circ$ (d) N.O.T

Q.17 $\tan 5x \tan 3x \tan 2x = ?$

(a) $\tan 5x - \tan 3x - \tan 2x$ (b) $\frac{\sin 5x - \sin 3x - \sin 2x}{\cos 5x - \cos 3x - \cos 2x}$

(c) 0 (d) N.O.T

Q.18) The Value of $\sin 47^\circ + \sin 61^\circ - \sin 11^\circ - \sin 25^\circ =$

(a) $\sin 36^\circ$ (b) $\cos 36^\circ$ (c) $\sin 7^\circ$ (d) $\cos 7^\circ$

Q.19) $\cos\frac{\pi}{11} + \cos\frac{3\pi}{11} + \cos\frac{5\pi}{11} + \cos\frac{7\pi}{11} + \cos\frac{9\pi}{11} = ?$

(a) $-\frac{1}{2}$ (b) $\frac{1}{2}$ (c) 1 (d) -1

Q.20) $\frac{\sec 8A - 1}{\sec 4A - 1} = ?$

(a) $\frac{\tan 2A}{\tan 8A}$ (b) $\frac{\tan 8A}{\tan 2A}$ (c) $\frac{\cot 8A}{\cot 2A}$ (d) N.O.T

Q.21) The Minimum Value of $3\cos x + 4\sin x + 5$ is

(a) 5 (b) 9 (c) 0 (d) 7

Q.22) The Value of $\sin 0^\circ + \sin 20^\circ + \sin 30^\circ + \cdots + \sin 360^\circ$ is

(a) 1 (b) -1 (c) 0 (d) N.O.T