QB365 Question Bank Software Study Materials

Trigonometry 50 Important 1 Marks Questions With Answers (Book Back and Creative)

11th Standard

Maths

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

1) $\frac{1}{cos80^0} - \frac{\sqrt{3}}{sin80^0} =$

(a) $\sqrt{2}$ (b) $\sqrt{3}$ (c) 2 **(d) 4**

2) If $\cos 28^0 + \sin 28^0 = k^3$, then $\cos 17^0$ is equal to

(a) $\frac{k^3}{\sqrt{2}}$ (b) $-\frac{k^3}{\sqrt{2}}$ (c) $\pm\frac{k^3}{\sqrt{2}}$ (d) $-\frac{k^3}{\sqrt{3}}$

3) The maximum value of $4\sin^2 x + 3\cos^2 x + sin\frac{x}{2} + cos\frac{x}{2}$ is

(a) $4+\sqrt{2}$ (b) $3+\sqrt{2}$ (c) 9 (d) 4

4) $\left(1+cos\frac{\pi}{8}\right)\left(1+cos\frac{3\pi}{8}\right)\left(1+cos\frac{5\pi}{8}\right)\left(1+cos\frac{7\pi}{8}\right) =$

(a) $\frac{1}{8}$ (b) $\frac{1}{2}$ (c) $\frac{1}{\sqrt{3}}$ (d) $\frac{1}{\sqrt{2}}$

5) If $\pi < 2\theta < \frac{3\pi}{2}$, then $\sqrt{2+\sqrt{2+2cos4\theta}}$ equals to

(a) $-2\cos\theta$ (b) $-2\sin\theta$ (c) $2\cos\theta$ **(d) $2\sin\theta$**

6) If $\tan 40^0 = \lambda$, then $\frac{tan140^0 - tan130^0}{1+tan140^0.tan130^0} =$

(a) $\frac{1-\lambda^2}{\lambda}$ (b) $\frac{1+\lambda^2}{\lambda}$ (c) $\frac{1+\lambda^2}{2\lambda}$ **(d)** $\frac{1-\lambda^2}{2\lambda}$

7) $\cos 1^0 + \cos 2^0 + \cos 3^0 + : : : + \cos 179^0 =$

(a) 0 (b) 1 (c) -1 (d) 89

8) Let $f_k(x) = \frac{1}{k}[\sin^k x + \cos^k x]$ where $x \in R$ and $k \geq 1$. Then $f_4(x) - f_6(x) =$

(a) $\frac{1}{4}$ **(b)** $\frac{1}{12}$ (c) $\frac{1}{6}$ (d) $\frac{1}{3}$

9) Which of the following is not true?

(a) $\sin\theta = -\frac{3}{4}$ (b) $\cos\theta = -1$ (c) $\tan\theta = 25$ **(d) $\sec\theta = \frac{1}{4}$**

10) $\cos 2\theta \cos 2\phi + \sin^2(\theta - \phi) - \sin^2(\theta + \phi)$ is equal to

(a) $\sin 2(\theta+\phi)$ **(b) $\cos 2(\theta+\phi)$** (c) $\sin 2(\theta-\phi)$ (d) $\cos 2(\theta-\phi)$

11) $\frac{sin(A-B)}{cosAcosB} + \frac{sin(B-C)}{cosBcosC} + \frac{sin(C-A)}{cosCcosA}$ is

(a) $\sin A + \sin B + \sin C$ (b) 1 **(c) 0** (d) $\cos A + \cos B + \cos C$

12) If $\cos p\theta + \cos q\theta = 0$ and if $p \neq q$, then θ is equal to (n is any integer)

(a) $\frac{\pi(3n+1)}{p-q}$ **(b)** $\frac{\pi(2n+1)}{p\pm q}$ (c) $\frac{\pi(n\pm 1)}{p\pm q}$ (d) $\frac{\pi(n+2)}{p+q}$

13) If $\tan\alpha$ and $\tan\beta$ are the roots of $x^2 + ax + b = 0$; then $\frac{sin(\alpha+\beta)}{sin\alpha sin\beta}$ is equal to

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

14) In a triangle ABC, $\sin^2 A + \sin^2 B + \sin^2 C = 2$, then the triangle is

(a) equilateral triangle (b) isosceles triangle **(c) right triangle** (d) scalene triangle

15) If $f(\theta) = |\sin\theta| + |\cos\theta|$, $\theta \in R$, then $f(\theta)$ is in the interval

(a) [0, 2] **(b) $[1, \sqrt{2}]$** (c) [1, 2] (d) [0, 1]

16) $\frac{cos6x+6cos4x+15cos2x+10}{cos5x+5cos3x+10cosx}$ is equal to

(a) cos 2x (b) cos x (c) cos 3x **(d) 2 cos x**

17) The triangle of maximum area with constant perimeter 12m

(a) is an equilateral triangle with side 4m (b) is an isosceles triangle with sides 2m, 5m, 5m

(c) is a triangle with sides 3m, 4m, 5m (d) Does not exist

18) A wheel is spinning at 2 radians/second. How many seconds will it take to make 10 complete rotations?

(a) 10π seconds (b) 20π seconds (c) 5π seconds (d) 15π seconds

19) If $\sin\alpha + \cos\alpha = b$, then $\sin 2\alpha$ is equal to

(a) $b^2 - 1$, if $b \le \sqrt{2}$ (b) $b^2 - 1$, if $b > \sqrt{2}$ (c) $b^2 - 1$, if $b \ge 1$ (d) $b^2 - 1$, if $b \ge \sqrt{2}$

20) In a ΔABC, if

(i) $sin\frac{A}{2}sin\frac{B}{2}sin\frac{C}{2} > 0$

(ii) $\sin A \sin B \sin C > 0$, Then

(a) Both (i) and (ii) are true (b) Only (i) is true (c) Only (ii) is true (d) Neither (i) nor (ii) is true

21) If the angles of a triangle are in A.P., then the measure of one of the angles in radians is _____

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

22) The value of $\sin^2\frac{5\pi}{12} - sin^2\frac{\pi}{12}$ is _____

(a) $\frac{1}{2}$ **(b) $\frac{\sqrt{3}}{2}$** (c) 1 (d) 0

23) $\cos 6x - \cos 8x$ = _____

(a) 2 sin 7x sin x (b) sin 7x sin x (c) $\frac{1}{2}\sin 7x + \sin x$ (d) $\sqrt{2}\sin 7x \sin x$

24) $\frac{cos3x}{2cos2x-1}$ is _____

(a) cos x (b) sin x (c) tan x (d) cot x

25) In any ΔABC, $a(b\cos C - c\cos B)$ = _____

(a) a^2 (b) $b^2 - c^2$ **(c) 0** (d) $b^2 + c^2$

26) If $\cos x = \frac{-1}{2}$ $0 < x < 2\pi$ and, then the solutions are _____

(a) $x = \frac{\pi}{3}, \frac{4\pi}{3}$ **(b) $x = \frac{2\pi}{3}, \frac{4\pi}{3}$** (c) $x = \frac{2\pi}{3}, \frac{7\pi}{6}$ (d) $x = \frac{2\pi}{3}, \frac{5\pi}{3}$

27) If $\sin(45° + 10°) - \sin(45° - 10°) = \sqrt{2}\sin x$ then x is _____

(a) 0° (b) 5° **(c) 10°** (d) 15°

28) If $\tan x = \frac{1}{7}$, $\tan y = \frac{1}{3}$ then x + y is _____

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

29) In a $\triangle ABC$, $\hat{A} = 60°$, $\hat{C} = 30°$, $b = 2\sqrt{3}$, $c = 2$ then a is _____

(a) 0 (b) 1 **(c) 4** (d) 2

30) $\tan 70° - \tan 20°$ = _____

(a) tan 50° **(b) 2 tan 50°** (c) tan 70° (d) 0

31) The value of cos 20°- sin 20° is _____

(a) positive (b) negative (c) 0 (d) 1

32) The value of tan 1° tan 2° tan 3°...tan 89° is _____

(a) ∞ (b) 0 **(c) 1** (d) $\sqrt{3}$

33) The value of $\frac{1-tan^2 15^\circ}{1+tan^2 15^\circ}$ is _____

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

34) If cos θ + $\sqrt{3}$ sin θ = 2 and θ∈[0, 2π] then θ is _____

(a) $\frac{\pi}{3}$ (b) $\frac{5\pi}{3}$ (c) $\frac{2\pi}{3}$ (d) $\frac{4\pi}{3}$

35) The numerical value of $\tan^{-1}1 + \tan^{-1}2 + \tan^{-1}3$ = _____

(a) π (b) $\frac{\pi}{2}$ (c) 0 (d) $\frac{\pi}{4}$

36) If cos A = cos B and sin A = sin B then _____

(a) A + B = 0 (b) A = B (c) A + B = 2nπ (d) A = B + 2nπ

37) If α and β are two values of θ obtained from the equation a cos θ + b sin θ = c then the value of $tan(\frac{\alpha+\beta}{2})$ is _____

(a) $\frac{a}{b}$ **(b)** $\frac{b}{a}$ (c) $\frac{c}{a}$ (d) $\frac{c}{b}$

38) If A, B, C are in A.P and B = $\frac{\pi}{4}$ then tan A tan B tan C = _____

(a) 1 (b) -1 (c) 0 (d) None

39) If $\sec x + \tan x = k$, $cosx =$ _____

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

40) The length of an arc of a circle of radius 5cm subtending a central angle measuring 15° is _____

(a) $\frac{5\pi}{12}$cm (b) $\frac{3\pi}{12}$cm (c) $\frac{7\pi}{12}$cm **(d)** $\frac{\pi}{3}$**cm**

41) $\cos 1^o + \cos 2^o + \cos 3^o + ...\cos 179$ =_____

(a) 0 (b) 1 (c) -1 (d) 89

42) Assertion (A) : cos x = $\frac{-1}{2}$ and $0\frac{2\pi}{3}, \frac{4\pi}{3}$.
Reason (R) : cos is negative in the first and fourth quadrant only.

(a) Both A and (R) are true and (R) is the correct explanation of (A)

(b) Both A and R are true but (R) is not the correct explantion of A **(c) A is true R is false** (d) A is false R is true

43) Choose the incorrect pair:

(a) sin x in IInd quadrant (b) cos x in Ist quadrant 1 (c) sec x in IIst quadrant -2 (d) tan x in IIIrd quadrant20

44) Find the odd one out of the following

(a) $\frac{1}{2}$ab sin C (b) $\frac{1}{2}$bc sin A (c) $\sqrt{s(s-1)(s-b)(s-c)}$ **(d)** $\sqrt{\frac{(s-b)(s-c)}{bc}}$

45) Find the incorrect pair

(a) $\frac{a}{sin\ A} = \frac{b}{sin\ B} = \frac{C}{sin\ C}$ - 2R (b) $\frac{b^2+c^2-a^2}{2bc}$ - cos A (c) $\frac{a-b}{a+b} cot\frac{c}{2}$ - $\tan\frac{A-B}{2}$ **(d)** $\frac{a^2+c^2-b^2}{2ac}$ **- cos C**

46) Choose the incorrect statement

(a) sinx lies in the interval [-1, 1] (b) cos x lies in the interval [-1, 1] (c) tan x lies in the interval (-∞, ∞)

(d) cos x lies in the inverval [-1,∞)

47) If the axes of same lengths in truo circles subtend central anglec 30^o and 40^o find the ratio of their radii _____

(a) 3: 4 **(b) 4 : 3** (c) 7 : 12 (d) None of these

48) If $\cos\theta + \sqrt{3}\sin\theta = 2$ then $\theta =$_____

(a) $\frac{\pi}{3}$ (b) $\frac{2\pi}{3}$ (c) $\frac{4\pi}{3}$ (d) $\frac{5\pi}{3}$

49) The smallest value of θ satisfying the equation $\sqrt{3}(\cot\theta + \tan\theta) = 4$ is _____

(a) $\frac{2\pi}{3}$ (b) $\frac{\pi}{3}$ **(c)** $\frac{\pi}{6}$ (d) $\frac{\pi}{12}$

50) The value of tan90° is :

(a) $\frac{\sqrt{3}}{2}$ (b) 0 (c) 1 **(d)** ∞