Introduction to Trigonometry

Question 1.
If $\cos(\alpha + \beta) = 0$, then $\sin(\alpha - \beta)$ can be reduced to
(a) $\cos \beta$
(b) $\cos 2\beta$
(c) $\sin \alpha$
(d) $\sin 2\alpha$

Answer: (b) $\cos 2\beta$

Question 2.
If $\cos(40° + A) = \sin 30°$, the value of A is:?
(a) 60°
(b) 20°
(c) 40°
(d) 30°

Answer: (b) 20°

Question 3.
If $\sin x + \operatorname{cosec} x = 2$, then $\sin^{19} x + \operatorname{cosec}^{20} x =$
(a) 2^{19}
(b) 2^{20}
(c) 2
(d) 2^{39}

Answer: (c) 2

Question 4.
If $\cos 9a = \sin a$ and $9a < 90°$, then the value of $\tan 5a$ is

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

Answer: (c) 1

Question 5.
$7 \sin^2\theta + 3 \cos^2\theta = 4$ then :
(a) $\tan \theta = \frac{1}{\sqrt{2}}$
(b) $\tan \theta = \frac{1}{2}$
(c) $\tan \theta = \frac{1}{3}$
(d) $\tan \theta = \frac{1}{\sqrt{3}}$

Answer: (d) $\tan \theta = \frac{1}{\sqrt{3}}$

Question 6.
$(1 + \tan\theta + \sec\theta)(1 + \cot\theta - \operatorname{cosec}\theta)$ is equal to
(a) 0
(b) 1
(c) 2
(d) -1

Answer: (c) 2

Question 7.
Ratios of sides of a right triangle with respect to its acute angles are known as
(a) trigonometric identities
(b) trigonometry
(c) trigonometric ratios of the angles
(d) none of these

Answer: (c) trigonometric ratios of the angles

Question 8.
If $\tan \theta = \frac{12}{5}$, then $\frac{1+sin\theta}{1-sin\theta}$ is equal to
(a) 24

(b) $\frac{12}{13}$
(c) 25
(d) 9

Answer: (c) 25

Question 9.
The value of cos θ cos(90° – θ) – sin θ sin (90° – θ) is:
(a) 1
(b) 0
(c) -1
(d) 2

Answer: (b) 0

Question 10.
If x = a cos θ and y = b sin θ, then $b^2x^2 + a^2y^2$ =
(a) ab
(b) $b^2 + a^2$
(c) a^2b^2
(d) a^4b^4

Answer: (c) a^2b^2

Question 11.
If ΔABC is right angled at C, then the value of cos (A + B) is
(a) 0
(b) 1
(c) $\frac{1}{2}$
(d) $\frac{\sqrt{3}}{2}$

Answer: (a) 0

Question 12.
If x and y are complementary angles, then
(a) sin x = sin y
(b) tan x = tan y

(c) cos x = cos y
(d) sec x = cosec y

Answer: (d) sec x = cosec y

Question 13.
sin (45° + θ) – cos (45° – θ) is equal to
(a) 2 cos θ
(b) 0
(c) 2 sin θ
(d) 1

Answer: (b) 0

Question 14.
If 0° < θ < 90°, then sec 0 is (a) >1
(b) < 1
(c) =1
(d) 0

Answer: (a) >1

Question 15.
In right triangle ABC, right angled at C, if tan A = 1, then the value of 2 sin A cos A is
(a) 0
(b) 1
(c) – 1
(d) 2

Answer: (b) 1

Question 16.
Given that sin $A=\frac{1}{2}$ and cos $B=\frac{1}{\sqrt{2}}$ then the value of (A + B) is:
(a) 30°
(b) 45°
(c) 75°
(d) 15°

Answer: (c) 75°

Question 17.
If sin A = $\frac{1}{2}$, then the value of cot A is
(a) √3
(b) $\frac{1}{\sqrt{3}}$
(c) $\frac{\sqrt{3}}{2}$
(d) 1

Answer: (a) √3

Question 18.
If $\sqrt{3}\tan\theta = 3\sin\theta$, then the value of $\sin^2\theta - \cos^2\theta$ is
(a) 0
(b) 1
(c) $\frac{1}{2}$
(d) $\frac{1}{3}$

Answer: (d) $\frac{1}{3}$

Question 19.
Out of the following options, the two angles that are together classified as complementary angles are
(a) 120° and 60°
(b) 50° and 30°
(c) 65° and 25°
(d) 70° and 30°

Answer: (c) 65° and 25°

Question 20.
If $\sin\theta - \cos\theta = 0$, vthen the value of θ is
(a) 90°
(b) 30°
(c) 45°
(d) 60°

Answer: (c) 45°

Question 21.
If tan 2A = cot (A – 18°), then the value of A is
(a) 24°
(b) 18°
(c) 27°
(d) 36°

Answer: (d) 36°

Question 22.
If cos A + $\cos^2$ A = 1, then $\sin^2$ A + $\sin^4$ A is
(a) -1
(b) 0
(c) 1
(d) 2

Answer: (c) 1

Question 23.
If sin θ + $\sin^2$ θ = 1, then $\cos^2$ θ + $\cos^4$ θ = ____
(a) -1
(b) 0
(c) 1
(d) 2

Answer: (c) 1

Question 24.
sin 2B = 2 sin B is true when B is equal to
(a) 90°
(b) 60°
(c) 30°
(d) 0°

Answer: (d) 0°
