Quant Mega Quiz for SSC CGL Tier - 2

Q1.

If $\sin\theta + \text{cosec}\,\theta = 2$, then the value of $\sin^{1000}\theta + \frac{1}{\sin^{1000}\theta}$ is:

(a) 0
(b) 1
(c) 2
(d) –1

Q2.

If $\sin\theta_1 + \sin\theta_2 + \sin\theta_3 = 3$ *then* $\cos\theta_1 \cos\theta_2 + \cos\theta_3 = ?$

(a) 3
(b) 2
(c) 1
(d) 0

Q3. The value of (sec θ – cos θ) (cosec θ – sin θ) (tan θ + cot θ) is:

(a) 1
(b) 0
(c) 2
(d) –1

Q4.

If $1 + \sin\theta + \sin^2\theta + \sin^3\theta$ .....$\infty = 4 + 2\sqrt{3}$ $(0 < \theta < \pi)$
then the value of θ is

(a) $\frac{\pi}{6}$
(b) $\frac{\pi}{4}$
(c) $\frac{\pi}{3}$ *or* $\frac{\pi}{6}$
(d) $\frac{\pi}{3}$ *or* $\frac{2\pi}{3}$

Q5. If 12 sin θ + 5 cos θ = 13 then the value of cot θ is:

(a) 12/5
(b) 5/12
(c) 12/13
(d) 5/13

Q6. If p = a sin x + b cos x and q = a cos x – b sin x, then what is the value of p^2+q^2?
(a) a + b
(b) ab
(c) a^2+b^2
(d) a^2-b^2

Q7. Which of the following statements is true in respect of the expression sin 31° + sin 32°?
(a) Its value is 0
(b) Its value is 1
(c) Its value is less than 1
(d) Its value is greater than 1

Q8.
What is the value of the expression
$\cos^2\frac{\pi}{8}+4\cos^2\frac{\pi}{4}-\sec\frac{\pi}{3}+5\tan^2\frac{\pi}{3}+\sin^2\frac{\pi}{8}$?
(a) 8
(b) 10
(c) 16
(d) 18

Q9. The maximum and minimum value of (1 + cos 2x) are:
(a) -1 and 1
(b) 1 and 2
(c) $-\frac{1}{2}$ and $\frac{1}{2}$

Q10. Cos 3 θ + sin3 θ is maximum when θ is:
(a) 15°
(b) 30°
(c) 45°
(d) 60°

Q11.
What is the remainder obtained on dividing $34^{43}+43^{34}$ by 7?
(a) 4
(b) 3
(c) 1
(d) 0

Q12. Two different prime numbers X and Y, both are greater than 2, then which of the following must be true?
(a) X – Y = 23
(b) X + Y ≠ 87
(c) Both (a) and (b)
(d) None of these

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Q13. What is the remainder when 1! + 2! + 3! ..... + 100! Is divided by 7?

(a) 0
(b) 5
(c) 6
(d) 3

Q14. On dividing 2272 as well as 875 by 3–digit number N, we get the same remainder. The sum of the digits of N is:

(a) 10
(b) 11
(c) 12
(d) 13

Q15. Which one of the following numbers will completely divide $(3^{25} + 3^{26} + 3^{27} + 3^{28})$?

(a) 11
(b) 16
(c) 25
(d) 30

Q16. There are two integers 34041 and 32506, when divided by a three–digit integer n, leave the same remainder. What is the value of n?

(a) 298
(b) 307
(c) 461
(d) Can't be determined

Q17. The LCM of two numbers is 40 times their HCF. The sum of the LCM and HCF is 1,476. If one of the numbers is 288, find the other numbers?

(a) 169
(b) 180
(c) 240
(d) 260

Q18.

Find the remainder when 7^{99} is divided by 2400.

(a) 1
(b) 343
(c) 49
(d) 7

Q19. In a problem involving division, the divisor is eight times the quotient and four times the remainder. If the remainder is 12, then the dividend is ?

(a) 300

(b) 288

(c) 512

(d) 524

Q20.

The simplified value of

$\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\left(1-\frac{1}{5}\right)\ldots\left(1-\frac{1}{99}\right)\left(1-\frac{1}{100}\right)$?

(a) 2/99

(b) 1/25

(c) 1/50

(d) 1/100

Q21.

If $\cos(\theta - A) = a$, $\cos(\theta - B) = b$,
then $\sin^2(A-B) + 2ab\cos(A-B)$ is equal to

(a) $a^2 - b^2$

(b) $a^2 + b^2$

(c) $b^2 - a^2$

(d) 2ab

Q22.

$\cos 15° \cos 7\frac{1}{2}° . \cos 82\frac{1}{2}° = ?$

(a) 1/2

(b) 1/8

(c) 1/4

(d) 1/16

Q23. If (secα + tanα) (secβ + tanβ) (secγ + tanγ) = (secα – tanα) (secβ - tanβ) (secγ – tanγ), then each of the side is equal to

(a) ±1

(b) − 1

(c) + 1

(d) 4

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Q24.

$\frac{2\cos 40° - \cos 20°}{\sin 20°} = ?$

(a) 0

(b) $\sqrt{3}$

(c) -1

(d) 2

Q25.

$2\sqrt{2}\sin 10°\left(\frac{\sec 5°}{2} + \frac{\cos 40°}{\sin 5°} - 2\sin 35°\right) = ?$

(a) 1

(b) 4

(c) $\sqrt{2}$

(d) -1

Q26.

If $\frac{\tan\theta+\cot\theta}{\tan\theta-\cot\theta} = 2$, $(0 \le \theta \le 90°)$, then the value of $\sin\theta$ is

(a) $\frac{2}{\sqrt{3}}$

(b) $\frac{\sqrt{3}}{2}$

(c) $\frac{1}{2}$

(d) 1

Q27.

$\frac{2\sin 68°}{\cos 22°} - \frac{2\cot 15°}{5\tan 75°} - \frac{3\tan 45°.\tan 20°.\tan 40°.\tan 50°.\tan 70°}{5}$ is equal to

(a) –1

(b) 0

(c) 1

(d) 2

Q28.

If $\cos^4\theta - \sin^4\theta = \frac{2}{3}$, then the value of $2\cos^2\theta - 1$ is

(a) 0

(b) 1

(c) 2/3

(d)3/2

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Q29. If $\sin\alpha \sec(30° + \alpha) = 1$ $(0 < \alpha < 60°)$, then the value of $\sin\alpha + \cos 2\alpha$ is

(a) 1

(b) $\frac{2+\sqrt{3}}{2\sqrt{3}}$

(c) 0

(d) $\sqrt{2}$

Q30.

If $\frac{\sin\theta+\cos\theta}{\sin\theta-\cos\theta} = 3$, then the value of $\sin^4\theta - \cos^4\theta$ is

(a) 1/5

(b) 2/5

(c) 3/5

(d) 4/5

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