

Quant Mega Quiz for SSC Tier-1

Q1. If $\frac{\tan \theta + \cot \theta}{\tan \theta - \cot \theta} = 2$, ($0 \leq \theta \leq 90^\circ$) then the value of $\sin \theta$ is

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

Q2. The value of $\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 89^\circ$ is:

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

Q3. If $\sin 17^\circ = \frac{x}{y}$, then the value of $(\sec 17^\circ - \sin 73^\circ)$ is

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

Q4. If $\sin (3x - 20^\circ) = \cos (3y + 20^\circ)$, then the value of $(x + y)$ is

- (a) 20°
- (b) 30°
- (c) 40°
- (d) 45°

Q5. If $\cos \theta \operatorname{cosec} 23^\circ = 1$, the value of θ is

- (a) 23°
- (b) 37°
- (c) 63°
- (d) 67°



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Q6. The value of $\cos 1^\circ \cos 2^\circ \cos 3^\circ \dots \cos 177^\circ \cos 178^\circ \cos 179^\circ$ is:

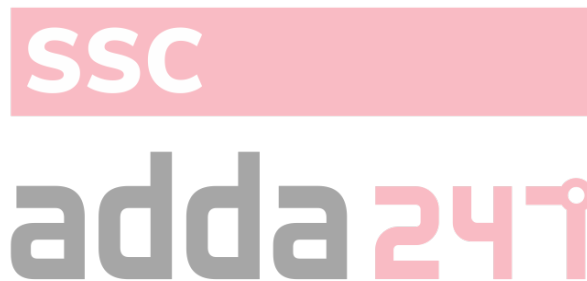
- (a) 0
- (b) $\frac{1}{2}$
- (c) 1
- (d) $\frac{1}{\sqrt{2}}$

Q7. If $\sec \theta + \tan \theta = \sqrt{3}$ ($0^\circ \leq \theta \leq 90^\circ$), then $\tan 3\theta$ is

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

Q8. If $\operatorname{cosec} \theta - \cot \theta = \frac{7}{2}$, the value of $\operatorname{cosec} \theta$ is:

- (a) $\frac{47}{28}$
- (b) $\frac{51}{28}$
- (c) $\frac{53}{28}$
- (d) $\frac{49}{28}$



Q9.

The equation

$$\cos^2 \theta = \frac{(x+y)^2}{4xy}$$

is only possible when

- (a) $x = -y$
- (b) $x > y$
- (c) $x = y$
- (d) $x < y$

Q10.

If $x = 2a \cos \theta + b \sin \theta$,

$y = 2a \sin \theta - b \cos \theta$

then which of the following is true?

- (a) $x^2 + y^2 = a^2 + b^2$
- (b) $x^2 + y^2 = 2a^2 + b^2$
- (c) $x^2 + y^2 = 4a^2 + b^2$
- (d) $x^2 + y^2 = 8a^2 + b^2$

Q11. If $\sec \alpha + \tan \alpha = 2$, then the value of $\sin \alpha$ is (assume that $0 < \alpha < 90^\circ$)

- (a) 0.4
- (b) 0.5
- (c) 0.6
- (d) 0.8

Q12. If θ is positive acute angle and $3(\sec^2 \theta + \tan^2 \theta) = 5$, then the value of $\cos 2\theta$ is

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

Q13. The circular measure of an angle of an isosceles triangle is $5\pi/9$, Circular measure of one of the other angles must be

- (a) $5\pi/18$
- (b) $5\pi/9$
- (c) $2\pi/9$
- (d) $4\pi/9$

Q14. The degree measure of 1 radian ($\pi = 22/7$)

- (a) $57^\circ 61' 22''$ (approx.)
- (b) $57^\circ 16' 22''$ (approx.)
- (c) $57^\circ 21' 16''$ (approx.)
- (d) $57^\circ 62' 16''$ (approx.)

Q15. $\left(\frac{3\pi}{5}\right)$ radians is equal to

- (a) 100°
- (b) 120°
- (c) 108°
- (d) 180°

Q16. If the sum and difference of two angles are 135° and $\pi/12$ respectively, then the value of the angles in degree measure are

- (a) $70^\circ, 65^\circ$
- (b) $75^\circ, 60^\circ$
- (c) $45^\circ, 90^\circ$
- (d) $80^\circ, 55^\circ$



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Q17. If $\cos \theta + \sin \theta = \sqrt{2} \cos \theta$, then $\cos \theta - \sin \theta$ is

- (a) $\sqrt{2} \tan \theta$
- (b) $-\sqrt{2} \cos \theta$
- (c) $-\sqrt{2} \sin \theta$
- (d) $\sqrt{2} \sin \theta$

Q18. If $\sin \theta - \cos \theta = \frac{1}{2}$ then value of $\sin \theta + \cos \theta$ is:

- (a) -2
- (b) ± 2
- (c) $\frac{\sqrt{7}}{2}$
- (d) 2

Q19. If $\cos^2 \theta - \sin^2 \theta = \frac{1}{3}$, where $0 \leq \theta < \frac{\pi}{2}$,
then the value of $\cos^4 \theta - \sin^4 \theta$ is

- (a) $\frac{1}{3}$
- (b) $\frac{2}{3}$
- (c) $\frac{1}{9}$
- (d) $\frac{2}{9}$

Q20. If $3 \sin \theta + 5 \cos \theta = 5$, then the value of $5 \sin \theta - 3 \cos \theta$ will be

- (a) ± 3
- (b) ± 5
- (c) ± 2
- (d) ± 1

Q21. The ratio of milk and water in a vessel is 14 : 13 . If 54 ltr of mixture is taken out and 82 ltr water is added then ratio of milk and water becomes 13 : 15. Then find the initial quantity of milk in the mixture ?

- (a) 364 litre
- (b) 392 litre
- (c) 138 litre
- (d) 540 litre

Q22. Two vessel contain water and spirit in the ratio 3 : 9 and 7 : 6, If both the vessels are mixed in the ratio 1 : 1. Find the ratio of water and spirit in the new mixture ?

- (a) 41 : 63
- (b) 51 : 64
- (c) 37 : 29
- (d) 7 : 13

Q23. There are 2 types of coins 10p and 25p in a box. The total money in the box is Rs. 46 and the total number of coins is 250. Find the number of 10p coins.

- (a) 140
- (b) 110
- (c) 100
- (d) 108

Q24. The ratio of milk and water in a mixture is 4 : 5. How much part of the mixture should be replaced by water so that ratio of milk and water is 2 : 3 ?

- (a) $\frac{2}{45}$
- (b) $\frac{3}{46}$
- (c) $\frac{1}{45}$
- (d) $\frac{4}{45}$

Q25. No stag is allowed in a party. $\frac{2}{3}$ of the males are interested in dancing. If overall 50% people are interested in dancing. Find the ratio of females interested in dancing to those females who are not.

- (a) 3 : 2
- (b) 1 : 4
- (c) 1 : 2
- (d) 1 : 3

Q26. A, B and C are three partners in a business. A receives $\frac{2}{5}$ th part of the total profit and remaining profit is distributed between B and C. If profit return will increase from 5% to 9%, then profit of A increase by Rs 420. Find the total investment of B & C?

- (a) Rs. 32575
- (b) Rs. 15750
- (c) Rs. 29840
- (d) Rs. 18480

Q27. P, Q R are partners in a company P's money is used for 6 months and claims $\frac{4}{7}$ of the profit. Q's money is used for 5 months and claims $\frac{3}{14}$ of the profit. R invested Rs. 2400 for 6 months. How much total money (in Rs) did P and Q invested?

- (a) 9361
- (b) 9280
- (c) 7385
- (d) 12400

Q28. A contractor hires 36 men for a work, they complete $\frac{3}{4}$ th of the work in 15 days. After that work is stopped due to rain, 25% of the completed work is destroyed by rain and 6 men falls sick. Find the time in which remaining work will be completed. ?

- (a) 9 days
- (b) $12\frac{1}{2}$ days
- (c) $8\frac{1}{3}$ days
- (d) $10\frac{1}{2}$ days

Q29. A and B started working together but after some days, A left the work and the whole work will be completed in 24 days. Find after how many days A left the work if A and B complete the work in 32 and 48 days respectively.

- (a) 8 days
- (b) 16 days
- (c) 18 days
- (d) 12 days

Q30. A and B can build a wall in 12 hours and 18 hours respectively. But if they work together they put 180 less bricks per hour and build a wall in 9 hours. Find the number of bricks in the wall.

- (a) 5820
- (b) 6120
- (c) 6480
- (d) 7260

