

Quant Mega Quiz for SSC CGL Tier - 2

Q1.

If $a + b + c = p$, $abc = q$ and $ab + bc + ca = 0$, then what is the value of $a^2b^2 + b^2c^2 + c^2a^2$?

- (a) $2pq$
- (b) $-2pq$
- (c) $3pq$
- (d) $-3pq$

Q2.

If $x^2 + y^2 + \frac{1}{x^2} + \frac{1}{y^2} = 4$, then the value of $x^2 + y^2$ is

- (a) 2
- (b) 4
- (c) 8
- (d) 16

Q3.

If $x^3 + y^3 = 35$ and $x + y = 5$, find the value of $\left(\frac{1}{x} + \frac{1}{y}\right)$?

- (a) $\frac{3}{7}$
- (b) $\frac{3}{8}$
- (c) $\frac{5}{6}$
- (d) $\frac{13}{7}$

Q4.

If $x^4 + \frac{1}{x^4} = 23$ then what is the value of $\left(x - \frac{1}{x}\right)^2$

- (a) -3
- (b) 3
- (c) 7
- (d) -7

Q5. If $a + b + c = 8$, then the value of $(a-4)^3 + (b-3)^3 + (c-1)^3 - 3(a-4)(b-3)(c-1)$ is :

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

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Q6.

If $p = \frac{5}{18}$, then the value of $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$ is :

- (a) 4/27
- (b) 5/27
- (c) 8/27
- (d) 10/27

Q7.

If $5^{\sqrt{x}} + 12^{\sqrt{x}} = 13^{\sqrt{x}}$, then x is equal to :

- (a) 25/4
- (b) 4
- (c) 9
- (d) 6

Q8.

If $x^2 + 2 = 2x$, then the value of $x^4 - x^3 + x^2 + 2$ is :

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

Q9. If a : b = 2 : 3 and b : c = 4 : 5, find a² : b² : bc ?

- (a) 4 : 9 : 25
- (b) 16 : 36 : 45
- (c) 16 : 36 : 25
- (d) 4 : 36 : 37

Q10.

$\left(x + \frac{1}{x}\right)\left(x - \frac{1}{x}\right)\left(x^2 + \frac{1}{x^2} - 1\right)\left(x^2 + \frac{1}{x^2} + 1\right)$ is equal to :

- (a) $x^6 + \frac{1}{x^6}$
- (b) $x^8 + \frac{1}{x^8}$
- (c) $x^8 - \frac{1}{x^8}$
- (d) $x^6 - \frac{1}{x^6}$

Q11.

If $\frac{x}{(b-c)(b+c-2a)} = \frac{y}{(c-a)(c+a-2b)} = \frac{z}{(a-b)(a+b-2c)}$
then $x + y + z$ is equal to :

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

Q12.

Given that, $10^{0.48} = x$, $10^{0.70} = y$ and $x^z = y^2$,
then the value of z is

- (a) 1.45
- (b) 1.88
- (c) 2.9
- (d) 3.7

Q13.

$x^{\frac{1}{3}} + y^{\frac{1}{3}} - z^{\frac{1}{3}} = 0$, then $\{(x + y - z)^3 + 27xyz\}$ is equal to:

- (a) -1
- (b) 1
- (c) 0
- (d) 27

Q14.

If $2p + \frac{1}{p} = 4$, then the value of $p^2 + \frac{1}{4p^2}$ is:

- (a) 4
- (b) 3
- (c) 8
- (d) 15

Q15.

If $x = 5 + 2\sqrt{6}$, then the value of $(\sqrt{x} + \frac{1}{\sqrt{x}})$ is :

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



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Q16.

If $a + b + c = 0$, then the value of $\frac{a^2+b^2+c^2}{a^2-bc} - 2$ is

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

Q17.

If $x = p + \frac{1}{p}$ and $y = p - \frac{1}{p}$, then value of $x^4 - 2x^2y^2 + y^4$ is :

- (a) 24
- (b) 4
- (c) 16
- (d) 8

Q18. If $x = -1$, then the value of $\frac{1}{x^{99}} + \frac{1}{x^{98}} + \frac{1}{x^{97}} + \frac{1}{x^{96}} + \frac{1}{x^{95}} + \frac{1}{x^{94}} + \frac{1}{x} - 1$ is

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

Q19.

If $x^2 = y + z, y^2 = z + x, z^2 = x + y$,
then the value of $\frac{1}{x+1} + \frac{1}{y+1} + \frac{1}{z+1}$ is

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

Q20.

If $a^2 + b^2 = 2$ and $c^2 + d^2 = 1$, then the value
of $(ad - bc)^2 + (ac + bd)^2$ is

- (a) 4/9
- (b) 1/2
- (c) 1
- (d) 2

Q21.

If $1.5a = 0.04b$ then $\frac{b-a}{b+a}$ is equal to

- (a) 73/77
- (b) 77/73
- (c) 2/75
- (d) 75/2

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Q22.

If $a = 11$ and $b = 9$, then the value of $\left(\frac{a^2+b^2+ab}{a^2-b^2}\right)$

- (a) $1/2$
- (b) 2
- (c) $1/20$
- (d) 20

Q23.

If $p = 999$, then the value of $\sqrt[3]{p(p^2 + 3p + 3) + 1}$ is

- (a) 1000
- (b) 999
- (c) 998
- (d) 1002

Q24.

If $(x - 3)^2 + (y - 5)^2 + (z - 4) = 0$,

then the value of $\frac{x^2}{9} + \frac{y^2}{25} + \frac{z^2}{16}$ is

- (a) 12
- (b) 9
- (c) 3
- (d) 1

Q25.

$\frac{a^2-b^2-2bc-c^2}{a^2+b^2+2bc-c^2}$ is equal to :

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

Q26. If $a+b+c+d=1$, then the maximum value of $(1+a)(1+b)(1+c)(1+d)$ is

- (a) 1
- (b) $\left(\frac{1}{2}\right)^3$
- (c) $\left(\frac{3}{4}\right)^3$
- (d) $\left(\frac{5}{4}\right)^4$

Q27.

If $\frac{1}{\sqrt[3]{4+\sqrt[3]{2+1}}} = a\sqrt[3]{4} + b\sqrt[3]{2} + c$ and a, b, c ,
are rational numbers, then $a + b + c$ is equal to

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

Q28.

If $a = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $b = \frac{\sqrt{5}-1}{\sqrt{5}+1}$ then the value of $\frac{a^2+ab+b^2}{a^2-ab+b^2}$

- (a) $3/4$
- (b) $4/3$
- (c) $3/5$
- (d) $5/3$

Q29.

If $x = \sqrt[3]{a + \sqrt{a^2 + b^3}} + \sqrt[3]{a - \sqrt{a^2 + b^3}}$,
then $x^3 + 3bx$ is equal to:

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

Q30.

If average of x and $\frac{1}{x}$ ($x \neq 0$) is M

then what is the average of x^2 and $\frac{1}{x^2}$?

- (a) $1-M^2$
- (b) $1-2M$
- (c) $2M^2 - 1$
- (d) $2M^2 + 1$

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