Quant Mega Quiz for SSC CGL Tier - 2

Q1. 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) $\left(\frac{5}{4}\right)^4$

Q2.

If $\dfrac{1}{\sqrt[3]{4}+\sqrt[3]{2}+1} = a\sqrt[3]{4} + b\sqrt[3]{2} + c$ and $a, b, c,$

are rational numbers, then $a + b + c$ is equal to

(a) 0

(b) 1

(c) 2

(d) 3

Q3.

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

(a) 3/4

(b) 4/3

(c) 3/5

(d) 5/3

Q4.

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

Q5.

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) $2M^2+1$

Q6.

If $(2+\sqrt{3})a = (2-\sqrt{3})b = 1$, then the value of $\frac{1}{a}+\frac{1}{b}$ is

(a) 1
(b) 2
(c) $2\sqrt{3}$
(d) 4

Q7.

The factors of $(a^2 + 4b^2 + 4b - 4ab - 2a - 8)$ are :

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

Q8. If $a^3-b^3=56$ and a-b=2 then what is the value of (a^2+b^2)?
(a) -12
(b) 20
(c) 18
(d) −10

Q9.

If $a = \sqrt{6}+\sqrt{5}$ and $b = \sqrt{6}-\sqrt{5}$,
then $2a^2 - 5ab + 2b^2$ is equal to :

(a) 38
(b) 39
(c) 40
(d) 41

Q10.

If $x = 3 + 2\sqrt{2}$, then the values of $x^3 + \frac{1}{x^3}$

and $x^3 - \frac{1}{x^3}$ are respectively :

(a) $140\sqrt{2}, 198$

(b) $234, 216$

(c) $216, 234$

(d) $198, 140\sqrt{2}$

Q11.

If $a^2 + b^2 + \frac{1}{a^2} + \frac{1}{b^2} = 4$, then the value of $a^2 + b^2$ will be

(a) 1
(b) 1 ½
(c) 2
(d) 2 ½

Q12.

If $\left(x + \frac{1}{x}\right)^2 = 3$, then $\left(x^3 + \frac{1}{x^3}\right)$ is equal to

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

Q13.

If $x^3 + 3x^2 + 3x = 7$, then x is equal to

(a) 2
(b) $\sqrt[3]{6}$
(c) 1
(d) -1

Q14.

If $2x + \frac{2}{x} = 1$, then the value of $x^3 + \frac{1}{x^3}$ is

(a) $\frac{13}{8}$

(b) $-\frac{11}{8}$

(c) $\frac{11}{8}$

(d) $-\frac{13}{8}$

Q15.

If $2x + \frac{1}{3x} = 6$, then $3x + \frac{1}{2x}$ is equal to

(a) 4
(b) 8
(c) 9
(d) 12

Q16.

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

(a) 2

(b) $-2\sqrt{2}$

(c) $2\sqrt{2}$

(d) $-\sqrt{2}$

Q17.

If $x^2 + y^2 - 2x + 6x + 10 = 0$, then the value of $(x^2 + y^2)$ is

(a) 4

(b) 6

(c) 8

(d) 10

Q18.

If $x^{1/3} + y^{1/3} = z^{1/3}$, then $(x + y - z)^3 + 27xyz$ is equal to

(a) 0

(b) 1

(c) –1

(d) 27

Q19.

If $a^2 = 2$, then $(a + 1)$ is equal to

(a) $a - 1$

(b) $\dfrac{2}{a - 1}$

(c) $\dfrac{a + 1}{3 - 2a}$

(d) $\dfrac{a - 1}{3 - 2a}$

Q20.

If $\left(x + \frac{1}{x}\right)^2 = 3$, then the value of
$x^{206} + x^{200} + x^{90} + x^{84} + x^{18} + x^{12} + x^6 + 1$ is

(a) 0

(b) 1

(c) 84

(d) 206

Q21. In ΔABC, the bisector of ∠A is AP and it meets BC at P.If a line DE intersects AB, AP and AC at D ,Q and E respectively and is perpendicular to AP , then which of the fallowing is true.
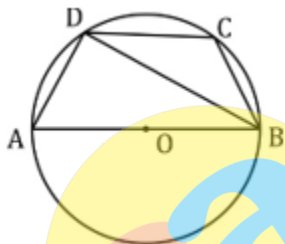(a) AQ=QP
(b) AD=AE
(c) BP=PC
(d) QP=EC

Q22. P is a point outside a circle and is 13 cm away from its centre a secant is drawn from point P intersect circle at A and B. PA = 9 cm and AB = 7 cm the radius of the circle is ?
(a) 10 cm
(b) 7 cm
(c) 8 cm
(d) 5 cm

Q23. Two chords AB and CD of a circle, centre of which is 'O', meet at point P and angle ∠AOC = 50°, ∠BOD = 40°. Find ∠BPD
(a) 45°
(b) 90°
(c) 105°
(d) 75°

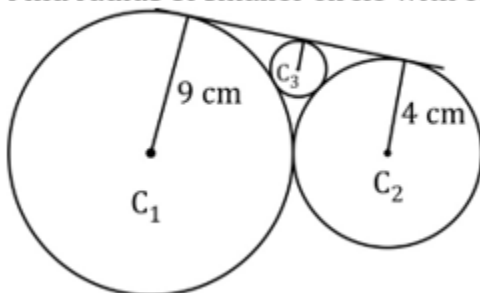**Q24.** In the adjoining figure AB is a diameter of the circle and ∠BCD = 130°. What is the value of ∠ABD ?

(a) 30°
(b) 50°
(c) 40°
(d) None of the above

Q25.

Find radius of smaller circle with centre C_3.

(a) 2.88 cm
(b) 1.36 cm
(c) 1.44 cm
(d) 2.12 cm

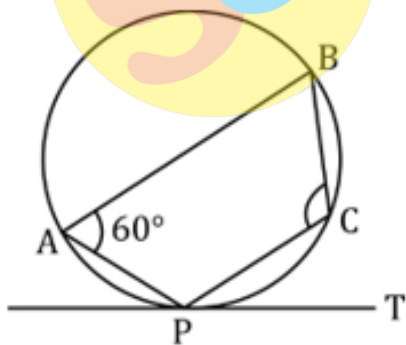**Q26.** In a triangle ABC with side AB = AC and ∠BAC = 20°, D is a point on side AC and BC = AD. Find ∠DBC :
(a) 50°
(b) 45°
(c) 65°
(d) 70°

Q27. ABC is an isosceles triangle and AC, BC are the tangents at M and N respectively. DE is the diameter of the circle. ∠ADP = ∠BEQ = 100°. What is value of ∠PRD ?
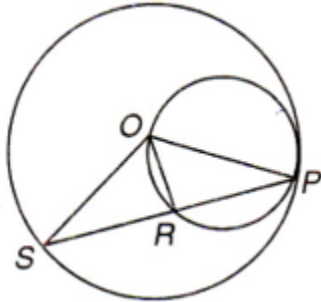

(a) 60°
(b) 50°
(c) 20°
(d) can't be determined

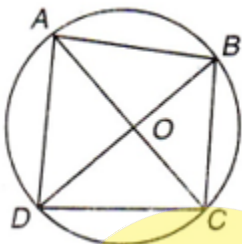**Q28.** In the given figure, PT is a tangent at P and ABCP is a quadrilateral. ∠BAP is 60°, then the value of ∠PCB is:

(a) 60°
(b) 90°
(c) data insufficient
(d) 120°

Q29. In the adjoining figure the diameter of the larger circle is 10 cm and the smaller circle touches internally the larger circle at P and passes through O, the centre of the larger circle. chord SP cuts the smaller circle at R and OR is equal to 4 cm. What is the length of the chord SP ?

(a) 9 cm
(b) 12 cm
(c) 6 cm
(d) $8\sqrt{2}$ cm

Q30. In the given figure ABCD is a cyclic quadrilateral DO = 8 cm and CO = 4 cm. AC is the4 angle bisector of ∠BAD. The length of AD is equal to the length of AB. DB intersects diagonal AC at O, then what is the length of the diagonal AC ?

(a) 20 cm
(b) 24 cm
(c) 16 cm
(d) None of these