Quant Mega Quiz for SSC CGL – Advance Level

Q1. A solid sphere is put upon a hollow cylinder of height 3 cm and vol. 27π. The diameter of the sphere is given as 10 cm. Find the height of the arrangement.

(a) 11
(b) 12
(c) 13
(d) 14

Q2. Let there be a regular hexagon ABCDEF of side length 12 cm. Center of its circum-circle is at O. then find the area of ACOEA (in cm^2).

(a) $72\sqrt{3}$
(b) $36\sqrt{6}$
(c) $54\sqrt{2}$
(d) $27\sqrt{3}$

Q3. If $55^{\sqrt{x}} + 132^{\sqrt{x}} = 143^{\sqrt{x}}$, then find x.

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

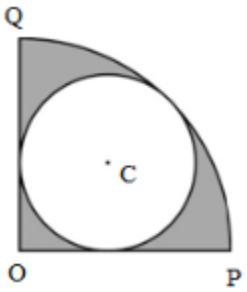
Q4. Inside a quadrilateral, circle has been drawn and it touches the all four sides of the quadrilateral. Length of three of its sides are given AB = 6 cm, BC = 8 cm, CD = 4 cm, AD = ?

(a) 5cm
(b) 6 cm
(c) 4 cm
(d) 2 cm

Q5. $Sec^{10}\theta$ =?

(a) $\sec^2\theta(1+\tan^2\theta)^4$
(b) $\sec\theta(1-\tan^2\theta)^5$
(c) $\sec^2\theta(1+\tan^2\theta)^5$
(d) $\sec^2\theta(1+\tan^2\theta)^3$

Q6. Find the area (in cm^2) of the shaded region if OP = 12cm.



(a) 297π
(b) (297-212√2)π
(c) (288√(2)- 396)π
(d) (256√2 – 235)π

Q7. In the given figure AOB is a quadrant which consists of two semicircles of equal diameter of 14 cm. Find the area (in cm^2) of the shaded region.

(a) 28
(b) 14
(c) 21
(d) 56

Q8.

If $\frac{3x+1}{(x-1)^2(x+2)} = \frac{A}{(x-1)} + \frac{B}{(x-1)^2} + \frac{C}{x+2}$, then A + B + C = ?

(a) 4/3
(b) 0
(c) 22/9
(d) 12/9

Q9. A regular polygon is having 20 diagonals. Find the internal angle between two consecutive sides of the polygon?

(a) 135
(b) 150
(c) 120
(d) 115

Q10.

$\frac{\sin 2\theta - \cos 4\theta}{\sin 2\theta + \cos 4\theta} = ?$

(a) tan 3θ
(b) tan 2θ
(c) tan θ
(d) 1 – tan 3θ

Q11. $3\cos\theta + 3 = 2\sin^2\theta$ $0 \le \theta < 2\pi$. Solve for θ.

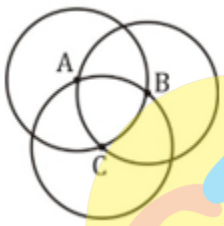
(a) π
(b) 2π
(c) π/2
(d) 3π/2

Q12.

If $x + \frac{1}{x} = 2$, then, $x^{100} - x^{99} + x^{97} - x^{98} + \cdots - x$ is equal to

(a) 0
(b) 1
(c) 2
(d) 100

Q13. The three circles of equal radii = 4 cm with centres at A, B and C pass through the centres of the other two circles. What is the perimeter (in cm) of the figure?



(a) 18π
(b) 12π
(c) 6π
(d) 20π

Q14. In a triangle ABC the base BC is trisected at D & E. The line through D, parallel to AB, meets AC at F and the line through E parallel to AC meets AB at G. Let EG and DF intersect at H. what is the ratio of sum of the area of ‖ gm AGHF and the area of the triangle DHE to the area of triangle ABC ?

(a) 1:3
(b) 4:5
(c) 2:9
(d) 1:2

Q15. In an isosceles ΔABC from it vertices B & C perpendicular has been drop on sides AC & AB at point D & E respectively. BD & CE cut each other at O. It is given that ∠OBC=25°. Find ∠ACO = ? (AB = AC)

(a) 30
(b) 65
(c) 50
(d) 40

Q16. R_1 & R_2 are remainders when $x^3 + 2x^2 - 5ax - 7$ & $x^3 + ax^2 - 12x + 6$ are divided by $x + 1$ & $x - 2$ respectively. If $2R_1 + R_2 = 6$ find 'a'.

(a) 2
(b) 3
(c) 4
(d) 6

Q17. What must be added to $x^4 + 2x^3 - 2x^2 + x - 1$ so that result is exactly divisibly by $x^2 + 2x - 3$.

(a) x - 2
(b) x + 2
(c) 6
(d) 8

Q18.

If $x^2 - 1$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$, then

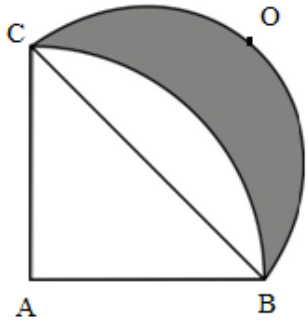
(a) a + c + e = b + d
(b) a + b + e = c + d
(c) a + b + c = d + e
(d) b + c + d = a + c

Q19.

$x^3 + y^3 = \sqrt{8}$ & $x + y = \sqrt{2}$ then find the value of $x^4 + y^4$ = ?

(a) $2^{\frac{7}{4}}$
(b) 4
(c) 2
(d) $2^{\frac{1}{2}}$

Q20. An isosceles ΔABC has AB = AC = 12 cm. & ∠A = 90°. An arc of radius AB is drawn & semicircle BOC with BC is drawn Find the area(in cm^2) enclosed between the arc & semicircle.



(a) 84
(b) 3168/7
(c) 72
(d) 792/7

Q21. C is the point of contact of two circles A and B. A common tangent AB is drawn and find ∠ACB ?
(a) 120°
(b) 90°
(c) 60°
(d) Cannot be determined

Q22. A cube of vol. $343\ cm^3$ is cut along its all three sides vertically 3 times to get 8 cubes of equal volume then find the Increase in surface area of the cubes (in cm^2).
(a) 105
(b) 150
(c) 147
(d) 294

Q23. Number of distinct triangles with integral valued sides and with perimeter 18 units.
(a) 6
(b) 8
(c) 10
(d) 7

Q24. One diagonal AC of || gm ABCD is 17 cm long and makes an angle of 30° and 15° with adjacent sides BC and CD respectively. Find length(in cm) of side BC.
(a) $17/2\ (\sqrt{3}-1)$
(b) $17/2\ (\sqrt{3}+1)$
(c) $17/2\ (2+\sqrt{3})$
(d) $17/2\ (1+2\sqrt{3})$

Q25. A sphere is cut 3 times diametrically to get identical 8 shapes. Find the % increase in the surface area, if the diameter of the sphere is 'a' cm.
(a) 150%
(b) 100%
(c) 250%
(d) 200%