SSC CGL Tier-II QUQNT : Memory Based Questions

Q1. Cos x Cos y + Sin x Sin y = -1
Than Cos x + Cos y = ?
(a) -2
(b) 0
(c) 2
(d) 1

Q2. If Cos A + Cos^2 A = 1.
a sin^{12} A + b sin^{10} A + c sin^8 A + d sin^6 A = 1, find $\frac{b+c}{a+d}$ = ?
(a) 2
(b) 4
(c) 3
(d) 1

Q3. If x=4 and y =-5, find $27x^3 + 18x^2y + 12xy^2 + y^3$?
(a) 64
(b) 512
(c) 256
(d) 1363

Q4. If $3x + \frac{3}{4x} = 6$
$32x^3 + \frac{1}{2x^3} + 3$ =?
(a) 160
(b) 211
(c) 163
(d) None of these.

Q5. ABCD is a square drawn inside PQRS of side 8 cm by joining midpoint of sides PQ, QR, RS, SP. Another square is drawn inside ABCD. This process repeated Infinite number of times. Find the sum of the area of all square?
(a) 64 cm^2
(b) 32 cm^2
(c) 96 cm^2
(d) 128 cm^2

Q6. A spherical shaped Rasgulla is placed inside a cube of side 6 cm such that the Rasgulla just fits the cube. A fly is sitting on one of the vertices of the cube. What is the shortest distance the fly must reach the Rasgulla?

(a) $\sqrt{3}-1$

(b) $2.5(\sqrt{3}-1)$

(c) $\sqrt{3}$

(d) $3(\sqrt{3}-1)$

Q7. Amit travels 259km in 7 hrs in two parts. In the first part of journey, he travels by bike at the speed of 30 km/hr. In the second part of journey, he travels by car at the speed of 45 km/hr. How much distance he travels by bike

(a) $142\frac{6}{7}$

(b) $138\frac{2}{15}$

(c) $157\frac{33}{37}$

(d) $120\frac{1}{7}$

Q8. If average of 15 observations a_1, a_2, a_3 ...a_{15} is X, then the average of a_1-99, a_2 – 99, a_3-99....a_{15}-99 is ?

(a) 99X

(b) 15X

(c) X- 99

(d) 15X- 99

Q9. A milkman has 2 containers containing different types of milk. Ist container has 80% milk and in the IInd container milk is 60%. If he mixes 7 litre of first container to 21 litre of milk in the second container, then the percentage of milk in the mixture is.

(a) 55%

(b) 65%

(c) $67\frac{1}{2}\%$

(d) $66\frac{2}{3}\%$

Q10. Rs 12000 becomes Rs 18240 in 4 yrs. If the rate of simple interest becomes 1.5 times of itself, the amount of the same principal in 5 yrs will be ?

(a) Rs 25500

(b) Rs 23700

(c) Rs 21690

(d) Rs 29400

Q11. On selling 156 bottles for Rs21.7 there is a profit of $29\frac{1}{6}\%$. If I want to earn a profit of 15.55% then how many bottles should I sell for Rs 16.80 ?

(a) 145
(b) 135
(c) 92
(d) 220

Q12. If x + (1/x) = p, then what is $x^6 + (\frac{1}{x^6})$ equal to?

(a) $p^6 + 6p$
(b) $p^6 - 6p$
(c) $p^6 + 6\,P^4 + 9p^2 + 2$
(d) $p^6 - 6\,p^4 + 9p^2 - 2$

Q13. The ratio of the number of boys to that of girls in a school is 4 : 1. If 75% of boys and 70% of the girls are scholarship holders, then the percentage of students who do not get scholarship is

(a) 50
(b) 28
(c) 75
(d) 26

Q14. A and B undertook to do a piece of work for Rs. 4500. A alone could to it in 8 days and B alone in 12 days. With the assistance of C they finished the work in 4 days. Then C's share of the money is

(a) Rs. 2250
(b) Rs. 1500
(c) Rs. 750
(d) Rs. 375

Q15. Two friends P and Q stared a business investing amount in the ratio of 5 : 6. R joined them after 6 months investing an amount equal to that of Q's amount. At the end of year 20% profit was earned which was equal to Rs. 98,000. What was the share of R in the profit?

(a) Rs. 21,000
(b) Rs. 1,05,00
(c) Rs. 17,500
(d) Rs. 22,500

Q16. What is the difference between the compound interest and simple interest on a sum Rs. 2200 for a period of 2 years, if the compound interest is at a rate of 30% p.a. and simple interest is at a rate of 36% p.a.?

(a) Rs. 62
(b) Rs. 65
(c) Rs. 64
(d) Rs. 66

Q17. Three pipes, A, B and C, can fill a tank in 40, 60 and 100 minutes respectively. If tap A is opened first, tap B after 10 minutes and tap C after another 5 minutes, in how many more minutes will the tank be filled?

(a) $10\frac{13}{37}$ min

(b) $12\frac{22}{29}$ min

(c) None of these

(d) $10\frac{15}{31}$ min

Q18. If the cost price is same and the selling price is reduced by 40%, the profit gets reduced by 50%. If the selling price is increased by 20% then what will be the profit percentage?

(a) 400%

(b) 250%

(c) 500%

(d) 600%

Q19. A boat can travel 352 km downstream and 112 km upstream in total 24 hours. If respective ratio of speed of boat in still water to speed of stream is 9: 2, then find total distance travelled by boat in 5 hours in downstream is what percent more than total distance travelled by boat in two hours in upstream?

(a) $292\frac{6}{7}\%$

(b) $284\frac{6}{7}\%$

(c) $296\frac{6}{7}\%$

(d) $288\frac{6}{7}\%$

Q20. If a nine – digit number 985x3678y is divisible by 72, then the value of (4x - 3y) is –

(a) 6

(b) 4

(c) 3

(d) 5

Q21. The average of twelve numbers is 46. The average of first four numbers is 43 and that of the last five numbers is 49.4. the 5th and the 6th numbers are respectively 4 and 6 more than the 7thnumber. What is the average of 5th and 7th numbers?

(a) 43.5

(b) 44.5

(c) 44

(d) 43

Q22. PAB and PCD are two secants to a circle. If PA= 10 cm, AB = 12 cm and PC=11 cm, then what is the value of CD (in cm)

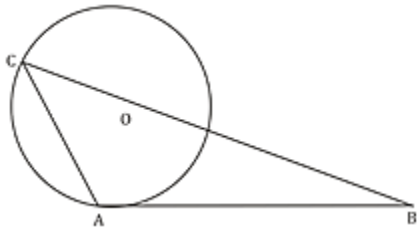
(a) 15

(b) 9

(c) 10

(d) 8

Q23. In the given fig Δ ABC is drawn such that AB is tangent to a circle at A whose radius is 10 cm and BC passes through centre of the circle. Point C lies on the circle, If BC = 36cm and AB = 24 an then what is the area of ΔABC?



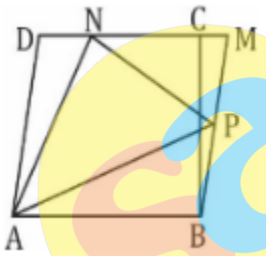
(a) $166.15cm^2$

(b) $169.15\ cm^2$

(c) $162\ cm^2$

(d) None of these

Q24. Parallelograms ABCD and ABMN are on the base AB, where AB || DM. If the area of || gm ABMN is 80 sq. unit, what will be the area of ΔAPN?



(a) 20 sq. unit

(b) 30 sq. unit

(c) 40 sq. unit

(d) 160 sq. unit

Q25. In what ratio does the point (–4, 6) divides the line segment joining the points A(-6, 10) and B(3,-8)internally ?

(a) 1 : 7

(b) 2 : 7

(c) 7 : 2

(d) 7 : 1

Q26. The circumference of a circular ground is 88 m. A strip of land, 3 m wide, inside and along circumference of the ground is to be levelled. What is the budgeted expenditure if the leveling costs Rs. 7 per square metre?

(a) Rs. 1050
(b) Rs. 1125
(c) Rs. 1325
(d) Rs. 1650

Q27. ABC is a triangle. $AB = 5$ cm, $AC = \sqrt{41}$ **cm and BC = 8 cm. AD is perpendicular to BC. What is the area** (in cm^2) **of triangle ABD?**

(a) 12
(b) 6
(c) 1 0
(d) 20

Q28. The coordinates of the middle points of the sides of a triangle are (4, 2), (3, 3) and (2, 2), then find the coordinates of its centroid are

(a) $\left(3, \frac{7}{3}\right)$
(b) $(3, 3)$
(c) $(4, 3)$
(d) $(4, \frac{7}{3})$

Q29. If $9x^2 + \frac{1}{x^2} = 3$, find $27x^3 + \frac{1}{x^3}$?

(a) 9
(b) – 3
(c) 0
(d) 1

Q30. Find the value of

$(3350)^2 + (3353)^2 + (3355)^2 - (3350 \times 3353) - (3353 \times 3355) - (3355 \times 3350)$

(a) 15
(b) 13
(c) 19
(d) 17

Q31. A cone is fit into a sphere of radius R. Find the maximum volume of cone?

(a) $\frac{16}{81}\pi R^3$
(b) $\frac{32}{81}\pi R^3$
(c) $\frac{45}{83}\pi R^3$
(d) $\frac{16}{19}\pi R^3$

Q32. A kite is flying in the sky. The length of string between a point on the ground and kite is 420m. The angle of elevation of string with the ground is 30°. Assuming that there is no slack in the string, what is the height (in metres) of the kite?

(a) $210\sqrt{3}$

(b) 210

(c) $140\sqrt{3}$

(d) 150

Q33. $\frac{(4.63-3.17)^2}{(3.17-2.25)(2.25-4.63)}+\frac{(3.17-2.25)^2}{(2.25-4.63)(4.63-3.17)}+\frac{(2.25-4.63)^2}{(4.63-3.17)(3.17-2.25)}$ is simplified to

(a) 0

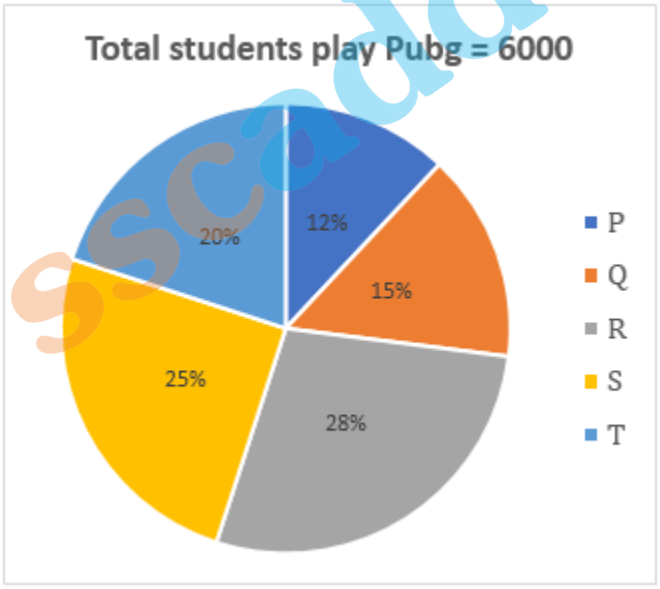
(b) 1

(c) 2

(d) 3

Directions (34-38): Given pie chart shows percentage distribution of students who play 'Pubg' from five different colleges (P, Q, R, S & T) and table shows number of students who have Royal elite pass. Read the data carefully and answer the questions.

Note- Student who play Pubg = Student who have royal elite pass + Student who do not have royal elite pass



Colleges	Students who have al elite pass
P	440
Q	500
R	880
S	700
T	360

Q34. Total students who do not have Royal elite pass from Q & T together is what percent more than total students who do not have Royal elite pass from R?

(a) 45%

(b) 40%

(c) 35%

(d) 55%

Q35. If total boys who do not have Royal elite pass is $66\frac{2}{3}\%$ more than total girls who do not have Royal elite passfrom S, then find ratio of total boys who do not have Royal elite pass from S to total students who do not have Royal elite pass P & R together?

(a) 25 : 64

(b) 25 : 54

(c) 25 : 58

(d) 25 : 52

Q36. Find the central angle for total students who do not have Royal elite pass from Q & R and total students who have Royal elite pass from T with respect of total students who played 'Pubg'?

(a) 93.6°

(b) 83.6°

(c) 99.6°

(d) 84.6°

Q37. Out to total students who played 'Pubg' from R, $46\frac{3}{7}\%$ are girls and $\frac{7}{13}^{th}$ of total girls who play 'Pubg' have Royal elite pass, then find total boys who do not have Royal elite pass?

(a) 320

(b) 356

(c) 396

(d)440

Q38. In another college 'U' total students who have Royal elite pass are 20% more than total students who have not Royal elite pass from P and students who have Royal elite pass are $42\frac{6}{7}\%$ of total students who play 'Pubg' from U. Find total students who do not have Royal elite pass from U is what percent less than total students who do not have Royal elite pass from R?

(a) 32%

(b) 36%

(c) 44%

(d) 30%

Q39.

If $\sin^2\theta + 3\cos\theta - 2 = 0$

then, $\cos^3\theta + \sec^3\theta + 2(\cos\theta + \sec\theta) = ?$

(a) 6
(b) 0
(c) 24
(d) 18

Q40. The base of a pyramid is a regular polygon whose total surface area is 340sq cm and area of base is 100sq cm, if area of each lateral surface is 30 sq cm, then find number of lateral surface of pyramid?

(a) 7
(b) 8
(c) 9
(d) 10

Q41. Three circles of radius a, b, c touch each other externally. The area of the triangle formed by joining their centre is

(a) $\sqrt{(a+b+c)(ab+bc+ca)}$
(b) $ab + bc + ca$
(c) $(a+b+c)\sqrt{abc}$
(d) None of these

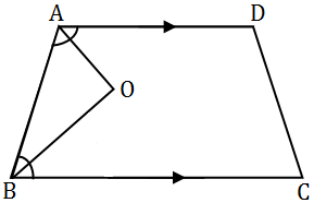
Q42. ABCD is a cyclic quadrilateral. The side AB is extended to E in such a way that BE = BC, If ∠ADC = 70°, ∠BAD = 95°, then ∠DCE is equal to

(a) 140°
(b) 120°
(c) 165°
(d) 110°

Q43. What is the rate of interest (in %) if simple interest on a certain sum for the 3 years is Rs. 51000 and compound interest earned for 2 years is Rs. 37060?

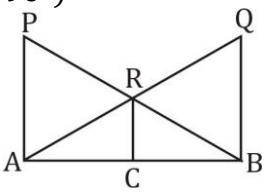
(a) 19%
(b) 18%
(c) 17%
(d) 15%

Q44. In the given figure AD || BC & internal bisectors of ∠B and ∠A meet at point O. Find the measure of ∠AOB in degree.



(a) 90°
(b) 105°
(c) 120°
(d) 140°

Q45. In the given figure PA = x, RC = y, QB = z, which one is correct ? ($\angle PAB = \angle QBC = \angle RCB = 90°$)



(a) $2y = x + z$
(b) $4y = x + z$
(c) $xy + yz = xz$
(d) $xy + xz = yz$

Q46. In a class, the number of girls is 20% more than that of the boys. The strength of the class is 66. If 4 more girls are admitted to the class, the ratio of the number of boys to that of the girls is.
(a) 1 : 2
(b) 3 : 4
(c) 1 : 4
(d) 3 : 5

Q47. If $\sin\theta = \frac{3}{4}$, then $\sqrt{\frac{\text{cosec}^2\theta - \cot^2\theta}{\sec^2\theta - 1}}$ is equal to :
(a) $\frac{\sqrt{5}}{3}$
(b) $\frac{\sqrt{7}}{3}$
(c) $\frac{\sqrt{2}}{3}$
(d) $\frac{\sqrt{3}}{2}$

Q48. The area of a square is 196 cm^2 and Whose side is half the radius of a circle. The circumference of the circle is equal to breadth of a rectangle, if perimeter of the rectangle is 712 cm. What is the length of the rectangle?
(a) 196 cm^2
(b) 186 cm^2
(c) 180 cm^2
(d) 190 cm^2

Q49. A lawn is in the form of a rectangle having its breadth and length in the ratio 3 : 4. The area of the lawn is $\frac{1}{12}$ hectare. The breadth of the lawn is:
(a) 25 metres
(b) 50 metres
(c) 75 metres
(d) 100 meters

Q50. Solve : The following $(1+\tan\theta + \sec\theta)(1 + \cot\theta - \text{cosec}\,\theta) -$
(a) –2
(b) 2
(c) 1
(d) –1