

SSC MAINS Quant Practice Set

- Q1. 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
- Q2. A cyclist in fog passed a man running at the rate of 6 km/hr in the same direction. He could see the cyclist for 5 minutes and it was visible to him upto a distance of 100 metres. What was the speed of the cyclist?
- (a) 7.2 km/hr
(b) 6 km/hr
(c) 9 km/hr
(d) None of these
- Q3. Two pipes can separately fill a tank in 20 hours and 30 hours respectively. Both the pipes are opened to fill the tank but when the tank is $\frac{1}{3}$ full a leak develops in the tank through which $\frac{1}{3}$ of the water supplied by both the pipes leak out. What is the total time taken to fill the tank?
- (a) 12 h
(b) 16 h
(c) 18 h
(d) 15 h
- Q4. A person sells his table at a profit of $12\frac{1}{2}\%$ and the chair at a loss of $8\frac{1}{3}\%$ but on the whole he gains Rs 25. On the other hand if he sells the table at a loss of $8\frac{1}{3}\%$ and the chair at a profit of $12\frac{1}{2}\%$ then he neither gains nor loses. Find the cost price of the table.
- (a) Rs 300
(b) Rs 360
(c) Rs 540
(d) Rs 400
- Q5. A train after travelling 50 km meets with an accident and then proceeds at $\frac{3}{4}$ of its former speed and arrives at its destination 35 minutes late. Had the accident occurred 24 km further, it would have reached the destination only 25 minutes late. Find the total distance of travelling.
- (a) 134 km
(b) 124 km
(c) 96 km
(d) 120 km
- Q6. $(a + b - 2c)^3 + (b + c - 2a)^3 + (c + a - 2b)^3$ is equal to -
- (a) $(a + b - 2c)(b + c - 2a)(c + a - 2b)$
(b) $2(a + b - 2c)(b + c - 2a)(c + a - 2b)$
(c) $3(a + b - 2c)(b + c - 2a)(c + a - 2b)$
(d) $3(a + b + 2c)(b + c + 2a)(c + a + 2b)$
- Q7. A and B walk from one corner of a rectangular field to the corner just diagonally opposite. A walks along the diagonal and B walks along the sides, reaching the finishing point together. If the reaching the finishing point together. If the ratio of the length and breadth to the field is 3 : 4, the ratio of their speeds is -
- (a) 3 : 4
(b) 4 : 3
(c) 4 : 5

(d) 5 : 7

Q8. Two circles of radii 5 cm and 3 cm touch externally, then the ratio in which the direct common tangent to the circles divides externally the line joining the centres of the circles is :

- (a) 5 : 3 (b) 3 : 5
(c) 1.5 : 2.5 (d) 2.5 : 1.5

Q9. $\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta}$ is equal to

- (a) $1 - \tan \theta - \cot \theta$
(b) $1 + \tan \theta - \cot \theta$
(c) $1 - \tan \theta + \cot \theta$
(d) $1 + \tan \theta + \cot \theta$

Q10. The numerical value of $\frac{1}{1 + \cot^2 \theta} + \frac{3}{1 + \tan^2 \theta} + 2 \sin^2 \theta$ will be

- (a) 2 (b) 5
(c) 6 (d) 3

Q11. A container contains 60 litre of milk. From this container 6 litre of milk was taken out and replaced by water. This process was repeated further two times. The amount of milk left in the container is

- (a) 34.24 litre (b) 39.64 litre
(c) 43.74 litre (d) 47.6 litre

Q12. Ramesh bought 10 cycles for Rs 500 each. He spent Rs 2000 on the repair of all cycles. He sold five of them for Rs 750 each and the remaining for Rs 550 each. Then the total gain or loss % is

- (a) Gain of $8\frac{1}{3}\%$
(b) Loss of $8\frac{1}{3}\%$
(c) Gain of $7\frac{2}{3}\%$
(d) Loss of $7\frac{1}{7}\%$

Q13. If a train runs of 40 km/hr, it reaches its destination late by 11 minutes. But if it runs at 50 km/hr, it is late by 5 minutes only. The correct time for the train to complete the journey is

- (a) 13 minutes
(b) 15 minutes
(c) 19 minutes
(d) 21 minutes

Q14. The simple interest on a certain sum for 8 months at 4% per annum is Rs 129 less than the simple interest on the same sum for 15 months at 5% per annum. The sum is

- (a) Rs 2580
(b) Rs 2400
(c) Rs 2529
(d) Rs 3600

Q15. A cyclist, after cycling a distance of 70 km on the second day, finds that the ratio of distances covered by him on the first two days in 4 : 5. If he travels a distance of 42 km on the third day, then the ratio of distances travelled on the third day and the first day is

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

Q16. An isosceles triangle ABC is right-angled at B. D is a point inside the triangle ABC. P and Q are the feet of the perpendiculars drawn from D on the sides AB and AC respectively of ΔABC . If $AP = a$ cm $AQ = b$ cm and $\angle BAD = 15^\circ$, $\sin 75^\circ =$

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

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

Q17. The distance between the centroid and the orthocenter is always:

- (a) Equal the distance between the centroid and the circumcentre.
 (b) Twice the distance between the centroid and the circumcentre.
 (c) Twice the distance between the centroid and the in-center.
 (d) Equal the distance between the centroid and the in-center.

Q18. ABC is an isosceles right angled triangle with $\angle B = 90^\circ$. On the sides AC and AB, two equilateral triangles ACD and ABE have been constructed. The ratio of areas of $\triangle ABE$ and $\triangle ACD$ is

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

Q19. A can complete a work in 10 days, B can complete the work in 20 days and C in 40 days. A starts working on the first day, B works for second day and C works for third day. Again A works for fourth day and B for fifth day and so on. If they continued working in the same way, in how many days will the work be completed?

- (a) 15 days
 (b) 16.5 days
 (c) 15.5 days
 (d) 17 days

Q20. If $a^2 + b^2 + c^2 = 2(a - b - c) - 3$, then the value of $a(a - b + c)$ is -

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

Q21. If $x^2 + 3x + 1 = 0$, then the value of $x^3 + \frac{1}{x^3}$ is -

- (a) -18
 (b) 36
 (c) 18
 (d) -36

Q22. Two vessels A and B contain milk and water mixed in the ratio 8 : 5 and 5 : 2 respectively. The ratio in which these two mixtures be mixed to get a new mixture containing $69\frac{3}{13}\%$ milk is :

- (a) 3 : 5 (b) 5 : 2
 (c) 5 : 7 (d) 2 : 7

Q23. A rectangular sheet of paper, 36 cm \times 22 cm, is rolled along its length to form a cylinder. Find the volume of the cylinder so formed.

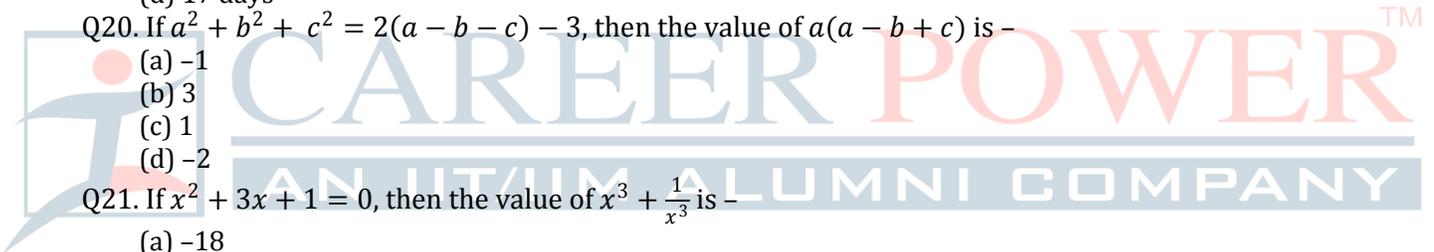
- (a) 2682 cm³
 (b) 6822 cm³
 (c) 2782 cm³
 (d) 1386 cm³

Q24. A pyramid on a square base has four equilateral triangles on its four equilateral triangles on its four other faces, each edge being 10 m. Find its volume.

- (a) 235.7 m³
 (b) 253.7 m³
 (c) 532.7 m³
 (d) 352.7 m³

Q25. If α, β, γ are the zeros of the polynomial $f(x) = ax^3 + bx^2 + cx + d$, then $(\alpha^2 + \beta^2 + \gamma^2) =$

- (a) $\frac{b^2 - ac}{a^2}$



(b) $\frac{b^2-2ac}{a}$

(c) $\frac{b^2+2ac}{b^2}$

(d) $\frac{b^2-2ac}{a^2}$

Q26. Solve the following system of equations in x and y .

$$(a - b)x + (a + b)y = a^2 - 2ab - b^2$$

$$(a + b)(x + y) = a^2 + b^2$$

(a) $x = a + b, y = \frac{2ab}{a+b}$

(b) $x = a + b, y = \frac{-2ab}{a+b}$

(c) $x = a - b, y = \frac{-2ab}{a+b}$

(d) None of these

Q27. In ΔABC , the bisector of $\angle B$ meets AC at D . A line $PQ \parallel AC$ meets AB, BC and BD at P, Q and R respectively. Then $AB \times CQ = ?$

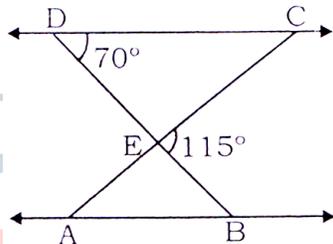
(a) $AP \times BC$

(b) $BC \times AB$

(c) $CQ \times AB$

(d) $RQ \times BA$

Q28. In the fig. If $\Delta EDC \sim \Delta EBA$, $\angle BEC = 115^\circ$ and $\angle EDC = 70^\circ$. Find the $\angle DCE$ and $\angle AEB$.



(a) $25^\circ, 45^\circ$

(b) $35^\circ, 55^\circ$

(c) $15^\circ, 25^\circ$

(d) $45^\circ, 65^\circ$

Q29. A man on the top of a vertical tower observes a car moving at a uniform speed coming directly towards it. If it takes 12 minutes for the angle of depression to change from 30° to 45° , how soon after this, will the car reach the tower?

(a) 16 min 23 sec

(b) 17 min 34 sec

(c) 15 min 32 sec

(d) 14 min 41 sec

Q30. A metal sphere, 14 cm in diameter, is dropped into a rectangular cistern whose base measures $49 \text{ cm} \times \frac{44}{3} \text{ cm}$. If the sphere is totally submerged, by how much will surface of the water be raised.

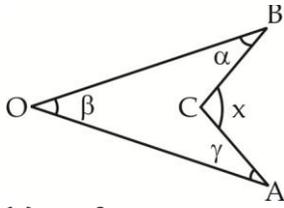
(a) 2 cm

(b) 1 cm

(c) 4 cm

(d) 3 cm

Q31. In the given figure, $x = ?$



- (a) $\alpha + \beta - \gamma$
- (b) $\alpha - \beta + \gamma$
- (c) $\alpha + \beta + \gamma$
- (d) $\alpha + \gamma - \beta$

Q32. Successive discounts of $12\frac{1}{2}\%$, $37\frac{1}{2}\%$, 15% and $11\frac{1}{9}\%$ are equivalent to a single discount of :

- (a) $55\frac{33}{76}\%$
- (b) $58\frac{49}{72}\%$
- (c) $51\frac{49}{72}\%$
- (d) $53\frac{33}{76}\%$

Q33. A man purchases two fans for Rs 2,160. By selling one fan at a profit of 15% and the other at a loss of 9% he neither gains nor loses in the whole transaction. Find the cost price of each fan in Rs.

- (a) 710 and 1450
- (b) 1530 and 630
- (c) 810 and 1350
- (d) 1340 and 820

Q34. Inside a triangle ABC, a straight line parallel of BC intersects AB and AC at the points P and Q respectively. If $AB = 3 PB$, then $PQ : BC$

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

Q35. Simplify $\frac{5+5 \times 5}{5 \times 5+5} \times \frac{\frac{1}{5} \div \frac{1}{5} \text{ of } \frac{1}{5}}{\frac{1}{5} \text{ of } \frac{1}{5} \div \frac{1}{5}} \times \left(5 - \frac{1}{5}\right) \times \frac{1}{\frac{46-3}{5} - \frac{2}{3}}$

- (a) 400
- (b) 500
- (c) 600
- (d) 300

Q36. $\frac{\sqrt{3+x} + \sqrt{3-x}}{\sqrt{3+x} - \sqrt{3-x}} = 2$ then x is equal to

- (a) $\frac{5}{12}$
- (b) $\frac{12}{5}$
- (c) $\frac{5}{7}$
- (d) $\frac{7}{5}$

Q37. A motor boat, travelling at the same speed, can cover 25 km upstream and 39 km downstream in 8 hour. At the same speed, it can travel 35 km upstream and 52 km downstream in 11 hour. The speed of the stream is -

- (a) 2 km/hour
- (b) 3 km/hour
- (c) 4 km/hour
- (d) 5 km/hour

Q38. If a sum of money placed at compound interest, compound annually, doubles itself in 5 years, then the same amount of money will be 8 times of itself in –

- (a) 25 years
- (b) 20 year
- (c) 15 years
- (d) 10 year

Q39. A person has left an amount of 120000 to be divided between his two sons ages 14 year and 12 year such that they get equal amounts when each attains 18 year of age. If the amount gets a simple interest of 5% per annum the younger son's share at per cent is –

- (a) Rs 48800
- (b) Rs 57600
- (c) Rs 62400
- (d) Rs 84400

Q40. ABC is a right angled triangle, right angled at C and p is the length of the perpendicular from C on AB. If a , b and c are the lengths of the sides BC, CA and AB respectively, then

- (a) $\frac{1}{p^2} = \frac{2}{b^2} - \frac{1}{a^2}$
- (b) $\frac{1}{p^2} = \frac{1}{a^2} - \frac{1}{b^2}$
- (c) $\frac{1}{p^2} + \frac{1}{a^2} = \frac{1}{b^2}$
- (d) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

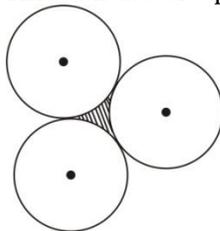
Q41. If $X * Y = X^2 + Y^2 - XY$ then $11 * 13$ is

- (a) 117
- (b) 147
- (c) 290
- (d) 433

Q42. The marked price of a shirt and a trouser are in the ratio 2 : 3. The shopkeeper gives 30% discount on the shirt. If the total discount is 20%. Then, the discount offered on the trouser is-

- (a) $12\frac{1}{2}\%$
- (b) $33\frac{1}{3}\%$
- (c) $13\frac{1}{3}\%$
- (d) $8\frac{1}{3}\%$

Q43. Three circles of equal radius 'a' cm touch each other. The area of the shaded region is :



- (a) $\left(\frac{\sqrt{3}+\pi}{2}\right) a^2\text{sq. cm}$
- (b) $\left(\frac{6\sqrt{3}-\pi}{2}\right) a^2\text{sq. cm}$
- (c) $(\sqrt{3} - \pi) a^2\text{sq. cm}$
- (d) $\left(\frac{2\sqrt{3}-\pi}{2}\right) a^2\text{sq. cm}$

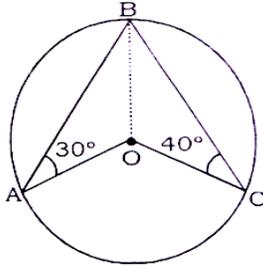
Q44. Find the remainder when the polynomial $f(x) = 2x^4 - 6x^3 + 2x^2 - x + 2$ is divided by $x + 2$.

- (a) 92
- (b) 87
- (c) 46
- (d) 76

Q45. A policeman goes after a thief who is 176 m before him. When and where will the policeman catch the thief when they run at the rates of 11.44 and 10.56 kmph respectively?

- (a) 8 minutes
- (b) 12 minutes
- (c) 16 minutes
- (d) 10 minutes

Q46. In the figure given below, O is the centre of the circle. If $\angle OAB = 30^\circ$ and $\angle OCB = 40^\circ$, what is the measure of $\angle AOC$?



- (a) 60°
- (b) 140°
- (c) 210°
- (d) 120°

Q47. The ratio of the amount for two years under CI annually and for one year under SI is 6 : 5, when the principle and rate of interest is same, then the value of rate of interest is

- (a) 12.5%
- (b) 18%
- (c) 20%
- (d) 16.66%

Q48. The batting average of a cricket player for 64 innings is 62 runs. His highest score exceeds his lowest score by 180 runs. Excluding these two innings, the average of remaining innings becomes 60 runs. His highest score was

- (a) 180 run
- (b) 209 runs
- (c) 212 runs
- (d) 214 runs

Q49. The average of eight numbers is 20. If the sum of first two numbers is 31, the average of the next three numbers is $12\frac{1}{3}$ and the seventh and eighth numbers exceed the sixth number by 4 and 7 respectively, then the eighth number is

- (a) 20
- (b) 25
- (c) 34
- (d) 25.3

Q50. The average height of 40 students is 163 cm. On a particular day, three students namely A, B, C were absent and the average of the remaining 37 students was found to be 162 cm. If A and B have equal height and the height of C be 2 cm less than that of A, find the height of A.

- (a) 170 cm
- (b) 172 cm
- (c) 176 cm

(d) 174 cm

Q51. Two vessels A and B contain mixtures of milk and water in the ratios 4 : 1 and 9 : 11 respectively. They are mixed in the ratio of 3 : 2. Find the ratio of milk and water in the resulting mixture.

(a) 12 : 25

(b) 15 : 37

(c) 17 : 19

(d) 33 : 17

Q52. If $x = a \sec \theta \cos \phi$, $y = b \sec \theta \sin \phi$, $z = c \tan \theta$, then, the value of $\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2}$ is

(a) 1

(b) 4

(c) 9

(d) 0

Q53. A girl walking diametrically across a semi-circular playground takes 3 mins less than if she had kept walking round the circular path from A to B, If she walks 60 metres in a minute, then find the diameter of the playground.

(a) 60 m

(b) 48 m

(c) 84 m

(d) 315 m

Q54. A sum of money is sufficient to pay A's wages for 21 days and B's wages for 28 days. The same money is sufficient to pay the wages of both for

(a) $12\frac{1}{4}$ days

(b) 14 days

(c) $24\frac{1}{2}$ days

(d) 12 days

Q55. A dishonest trader marks up his goods by 80% and gives discount of 25%. Besides he gets 20% more amount per kg from wholesaler and sells 10% less per kg to customer. What is the overall profit percentage?

(a) 80%

(b) 60%

(c) 70%

(d) None of these

Q56. If $a^2 + b^2 + c^2 = ab + bc + ca$, then $\frac{a+c}{b}$ is equal to

(a) 1

(b) 2

(c) 3

(d) 4

Q57. If $x + y = 2z$, then the value of $\frac{x}{x-z} + \frac{z}{y-z}$ is

(a) 1

(b) 3

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

(d) 2

Q58. If $x = 3 + 2\sqrt{2}$, then the value of $x^2 + \frac{1}{x^2}$.

(a) 36

(b) 30

(c) 32

(d) 34

Q59. An article of C.P. Rs. 8000 is marked at Rs. 11,200. After allowing a discount of x% a profit of 12% is made. The value of x is

- (a) 21%
- (b) 20%
- (c) 22%
- (d) 23%

Q60. If $x = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}}}}$ then, the value of $2x + \frac{7}{4}$ is :

- (a) 3
- (b) 4
- (c) 5
- (d) 6

Q61. AB and CD are two parallel chords on the opposite sides of the centre of the circle. If AB = 10 cm, CD = 24 cm, and the radius of the circle is 13 cm, the distance between the chords is

- (a) 17 cm
- (b) 15 cm
- (c) 16 cm
- (d) 18 cm

Q62. The external bisector of $\angle B$ and $\angle C$ of ΔABC (where AB and AC extended to E and F respectively) meet at point P. If $\angle BAC = 100^\circ$, then the measure of $\angle BPC$ is

- (a) 50°
- (b) 80°
- (c) 40°
- (d) 100°

Q63. In ΔABC , O is the centroid and AD, BE, CF are three medians and the area of $\Delta AOE = 15 \text{ cm}^2$, then area of quadrilateral BDOF is

- (a) 20 cm^2
- (b) 30 cm^2
- (c) 40 cm^2
- (d) 25 cm^2

Q64. A hall 25 metres long and 15 metres broad is surrounded by a verandah of uniform width of 3.5 metres. The cost of flooring the verandah, at Rs 27.50 per square metre is

- (a) Rs 9149.50
- (b) Rs 8146.50
- (c) Rs 9047.50
- (d) Rs 4186.50

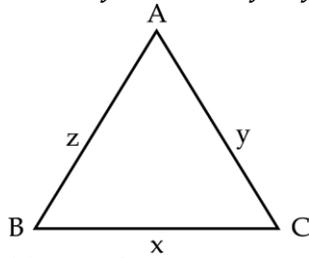
Q65. ABCD is a trapezium whose parallel sides AD and BC are in the ratio of 3 : 2. The shortest distance between them is 10 cm. AB and DC are extended to meet at O. If the area of ABCD be 100 sq cm, then the area of ΔOBC is

- (a) 60 sq cm
- (b) 80 sq cm
- (c) 90 sq cm
- (d) 120 sq cm

Q66. The cube of $\frac{(0.75)^3}{1-0.75} + [0.75 + (0.75)^2 + 1]$ is

- (a) 52
- (b) 2
- (c) 64
- (d) 4

Q67. If $x^2 + y^2 + z^2 = xy + yz + zx$, then the triangle is



- (a) isosceles
- (b) right-angled
- (c) equilateral
- (d) scalar

Q68. The mark price of radio is Rs. 480. The shopkeeper allows a discount of 10% and gains 8%. If no discount is allowed, his gain percentage would be

- (a) 18%
- (b) 18.5%
- (c) 20.5%
- (d) 20%

Q69. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = 3$, then find the value of $\frac{2a^2+3c^2+4e^2}{2b^2+3d^2+4f^2}$.

- (a) 2
- (b) 3
- (c) 4
- (d) 9

Q70. A cellphone is available for Rs. 600 cash payment or for Rs. 300 cashdown payment together with Rs. 360 to be paid after two months. Find the annual rate of interest charged under this scheme.

- (a) 20%
- (b) 50%
- (c) 120%
- (d) None of these

Q71. The sum of integers from 113 to 113113 which are divisible by 7 is

- (a) 92358576
- (b) 913952088
- (c) 94501895
- (d) 912952066

Q72. An sum of money at compound interest to grows uptoRs. 3840 in 4 years and uptoRs. 3936 in 5 years. Find the rate of interest?

- (a) 2.5%
- (b) 2%
- (c) 3.5%
- (d) 2.05%

Q73. The radii of two circles are 5 cm, 3 cm respectively and the distance between their centres is 24 cm. Then the length of the transverse common tangent is-

- (a) 16 cm
- (b) $15\sqrt{2}$ cm
- (c) $16\sqrt{2}$ cm
- (d) 15 cm

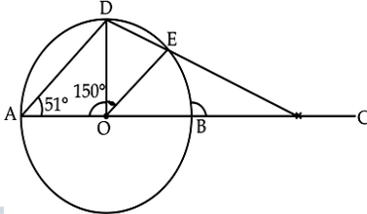
Q74. Some bricks are arranged in an area measuring 20 cu. m. If the length, breadth and height of each brick is 25 cm, 12.5 cm and 8 cm respectively, then in that pile the number of bricks are (suppose there is no gap in between two bricks)

- (a) 6,000
- (b) 8,000
- (c) 4,000
- (d) 10,000

Q75. If $x^{x\sqrt{x}} = (x\sqrt{x})^x$, then x equals:

- (a) $\frac{4}{9}$
- (b) $\frac{2}{3}$
- (c) $\frac{9}{4}$
- (d) $\frac{3}{2}$

Q76. In the following figures, AB be diameter of a circle whose centre is O. If $\angle AOE = 150^\circ$, $\angle DAO = 51^\circ$, then the measure of $\angle CBE$ is-



- (a) 115°
- (b) 110°
- (c) 105°
- (d) 120°

Q77. The perimeter of the triangular base of a right prism is 15 cm and radius of the incircle of the triangular base is 3 cm. If the volume of the prism be 270 cm^3 , then the height of the prism is-

- (a) 6 cm
- (b) 7.5 cm
- (c) 10 cm
- (d) 12 cm

Q78. At what time after 3 : 10 am, the acute angle made by the minute and hour hand is double to that of 3 : 10 am for the first time.

- (a) 4 : 43 am
- (b) 3 : 48 am
- (c) $3 : 29\frac{1}{11}$ am
- (d) None of these

Q79. Rs. 69 were divided among 115 students so that each girl gets 50p less than a boy. Thus each boy received twice the paisa than each girl received. The number of girls in the class is-

- (a) 92
- (b) 42
- (c) 33
- (d) 23

Q80. The length of a wall is $\frac{5}{4}$ times of its height. If the area of the wall be 180 m^2 . What is the sum of length and height of the wall?

- (a) 27
- (b) 30
- (c) 33
- (d) 47

Q81. The area of a trapezium is 441 cm^2 and the ratio of parallel sides is 5 : 9 and also the perpendicular distances between them is 21 cm then longer parallel sides is-

- (a) 36 cm
- (b) 27 cm
- (c) 18 cm
- (d) 28 cm

Q82. A square and rhombus have the same base. If the rhombus is inclined at 60° , find the ratio of area of square to the area of the rhombus.

- (a) $2 : \sqrt{3}$
- (b) $1 : \sqrt{3}$
- (c) $\sqrt{3} : 2$
- (d) None of these

Q83. Gaurav on walking at a speed of 16 km/hr reaches his office 8 minutes late. Even after increasing his speed by 8 km/hr, he reaches his office 6 minutes late. What is the distance of the office from his house?

- (a) 2.0 km
- (b) 1.6 km
- (c) 2.5 km
- (d) 2.4 km

Q84. If the sum and difference of two angles are 135° and $\frac{\pi}{12}$ respectively, then the value of the angle in degree measure are

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

Q85. In a ΔABC , $\angle B = \frac{\pi}{3}$, $\angle C = \frac{\pi}{4}$ and D divides BC internally in the ratio 1 : 3 then $\frac{\sin \angle BAD}{\sin \angle CAD}$ is equal to

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

Q86. If $\sin 3A = \cos(A-26^\circ)$, where $3A$ is an acute angle then the value of A is

- (a) 29°
- (b) 26°
- (c) 23°
- (d) 28°

Q87. A car driver leaves Bangalore at 8.30 A.M. and expects to reach a place 300 km from Bangalore at 12.30 P.M. At 10.30 he finds that he has covered only 40% of the distance. By how much he has to increase the speed of the car in order to keep up his schedule?

- (a) 45 km/hr (b) 40 km/hr
- (c) 35 km/hr (d) 30 km/hr

Q88. If $x = a(\sin\theta + \cos\theta)$, $y = b(\sin\theta - \cos\theta)$ then the value of $\frac{x^2}{a^2} + \frac{y^2}{b^2}$ is.

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

Q89. A man borrows money at 3% per annum interest payable yearly and lend it immediately at 5% interest (compound) payable half-yearly and thereby gains Rs. 330 at the end of the year. The sum borrowed is

- (a) Rs. 17000
- (b) Rs. 16500
- (c) Rs. 15000
- (d) Rs. 16000

Q90. Two years ago, the value of my motorbike was Rs. 62500. If the value depreciates by 4% every year, now its value is

- (a) Rs. 56700
- (b) Rs. 57600
- (c) Rs. 57500
- (d) Rs. 55700

Directions(91-95): Study the following table and answer the questions given below. Number of Tourist who visit different cities by different modes of transport

Cities	Vehicle				
	Car	Train	Bus	Bike	By Air
Delhi	192	188	172	191	174
Mumbai	180	166	178	187	182
Chandigarh	156	194	163	181	148
Dehradun	132	185	142	170	148
Masuri	149	159	155	149	183
Jaipur	168	163	158	142	174

Q91. What are the average number of tourists who comes by Train?

- (a) 190.5
- (b) 188.5
- (c) 175.83
- (d) 137.5

Q92. What is the difference between the total number of tourists who went to Mumbai and Masuri by all vehicle?

- (a) 78
- (b) 98
- (c) 88
- (d) 83

Q93. What is the percent of tourist went to Dehradun by train to the tourist who went to Chandigarh by Air?

- (a) 125
- (b) 145
- (c) 137
- (d) 160

Q94. What is the difference between the average number of tourist who went by Air to the average number of tourist who went by Bus?

- (a) 7.58
- (b) 9.97
- (c) 6.83
- (d) 2.30

Q95. What is the respective ratio the number of tourist of Delhi by Car to the Mumbai by air?

- (a) 35 : 83
- (b) 45 : 71
- (c) 96 : 91
- (d) 32 : 7

Directions (96-100): Study the following table carefully and answer the given questions:

The number of various crimes, as supplied by national crime record, reported in different states in the year 2012-13.

Dist	Stalking	Assault	Theft	Murder	Criminal Trespass
Bihar	352	496	265	132	332
MP	376	225	216	125	115
UP	85	125	53	56	57
HP	10545	3652	12224	354	10128
AP	445	225	252	173	154
Delhi	473	576	675	764	852
Haryana	245	256	257	261	263
Rajasthan	273	276	278	252	353

Q96. The total number of various crimes in HP is

- (a) 37803
- (b) 38903
- (c) 37903
- (d) 36903

Q97. Find the ratio of Stalking and Assault in UP to Theft and Criminal Trespass in Haryana.

- (a) 28 : 51
- (b) 21 : 52
- (c) 52 : 21
- (d) 14 : 55

Q98. Find the approximate average of Murder and Theft in all the eight states together.

- (a) 1141
- (b) 1132
- (c) 1311
- (d) 1021

Q99. The total number of Assaults and Murders together in Bihar is what per cent of the total number of crimes in that state?

- (a) 29.82%
- (b) 39.82%
- (c) 25%
- (d) 21.82%

Q100. Find the difference between the number of various crimes committed in Bihar and that in Rajasthan.

- (a) 105
- (b) 98
- (c) 145
- (d) 139