Quant Mega Quiz for SSC Tier - 1

Q1. The average age of A, B, C, D and E is 40 years. The average age of A and B is 35 years and the average age of C and D is 42 years. The age of E is:
(a) 46
(b) 48
(c) 32
(d) None of these

Q2. Nine persons went to a hotel for taking their meals. Eight of them spent Rs. 12 each over their meals and the ninth spent Rs. 8 more than the average expending of all the nine. Total money spent by them was:
(a) 104
(b) 105
(c) 116
(d) 117

Q3. The average age of eleven cricket players is 20 years. If the age of the coach is also included, the average age increases by 10%. The age of the coach is
(a) 48 years
(b) 44 years
(c) 40 years
(d) 36 years

Q4. The average of 3 consecutive natural numbers (which are in increasing order) is k. If two more consecutive numbers, just next the first set of numbers, is added, then the new average becomes
(a) k + 2
(b) k + 1
(c) $\frac{2k+1}{2}$
(d) 2k – 1

Q5. The average weight of a class of 33 students is 47 kg. If the weight of the teacher is included, then the average weight of the class increases by 1 kg. What is the weight of the teacher?
(a) 48
(b) 80
(c) 71
(d) 81

Q6. A batsman has a certain average in 59 innings that he has played till the last one. If his average increased by 2 runs after scoring 181 in the last innings, what is his average after these 60 innings?

(a) 61

(b) 63

(c) 62

(d) 60

Q7. The average weight of a group of 20 boys and calculated to be 89.4 kg and it was later discovered that one weight was misread as 78 kg instead of 87 kg. The correct average weight is:

(a) 88.95 kg

(b) 89.25 kg

(c) 89.55 kg

(d) 89.85 kg

Q8. The average monthly salary of all the employees in an industry is Rs. 12000. The average salary of male employees is Rs. 15000 an that of female employees is Rs. 8000. What is the ratio of male employees to female employees?

(a) 5 : 2

(b) 3 : 4

(c) 4 : 3

(d) 2 : 5

Q9. The arithmetic mean of the scores of a group of students in a test was 52. The brightest 20% of them secured a mean score of 80 and the dullest 25% a mean score of 31. The mean score of remaining 55% is: (approx.)

(a) 45

(b) 50

(c) 51.4

(d) 54.6

Q10. In the afternoon, a student read 100 pages at the rate of 60 pages per hour. In the evening, when she was tired, she read 100 more pages at the rate of 40 pages per hour. What was her average rate of reading, in pages per hour?

(a) 60

(b) 70

(c) 48

(d) 50

Q11. The value of the expression $2(\sin^6\theta + \cos^6\theta) - 3(\sin^4\theta + \cos^4\theta)+2$.

(a) –1
(b) 0
(c) 1
(d) 2

Q12. If x =cosecθ + sinθ and y =secθ + cosθ, then the relation b/w x and y is.

(a) $xy\,(x^2 - y^2) = 2$

(b) $xy\,(x^2 + y^2) = 2$

(c) $xy\left(\frac{1}{x^2} + \frac{1}{y^2}\right) = 2$

(d) $xy\left(\frac{1}{x^2} - \frac{1}{y^2}\right) = 2$

Q13. If cosecA + cotA = p, then the value of sinA is.

(a) $\frac{p^2+1}{2p}$

(b) $\frac{2p}{p^2+1}$

(c) $\frac{p^2-1}{2p}$

(d) $\frac{2p}{p^2-1}$

Q14. Evaluate: $\frac{\sin 36^\circ}{\cos 54^\circ} - \frac{\sin 54^\circ}{\cos 36^\circ}$

(a) 1
(b) 0
(c) –1
(d) 2

Q15. Evaluate: $\cos(40^\circ - \theta) - \sin(50^\circ + \theta) + \frac{\cos^2 40^\circ + \cos^2 50^\circ}{\sin^2 40^\circ + \sin^2 50^\circ}$

(a) 1
(b) –1
(c) –2
(d) 0

Q16. Evaluate: cot 12° cot 38° cot 52° cot 60° cot 78°

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

(b) $\frac{1}{\sqrt{3}}$

(c) $\frac{2}{\sqrt{3}}$

(d) $\sqrt{3}$

Q17. If A + B = 90°, then $\sqrt{\frac{\tan A \tan B + \tan A \cot B}{\sin A \sec B} - \frac{\sin^2 B}{\cos^2 A}} = ?$

(a) tan A
(b) sin A
(c) cot A
(d) cosec A

Q18. If sec 5A = cosec (A + 36°), where 5A is an acute angle, find the value of A.

(a) 8°
(b) 7°
(c) 9°
(d) 11°

Q19. Evaluate: $(\sin\theta + \sec\theta)^2 + (\cos\theta + \operatorname{cosec}\theta)^2$

(a) $(1+\sec\theta.\operatorname{cosec}\theta)^2$
(b) $1 + \sec\theta.\operatorname{cosec}\theta$
(c) $1 - \sec\theta$
(d) None of these

Q20. If $\sin\theta + \cos\theta = p$ and $\sec\theta + \operatorname{cosec}\theta = q$, then $q(p^2 - 1) = ?$

(a) p
(b) 2p
(c) 3p
(d) $2p^2$

Q21. A right circular cone is segmented into three parts whose volumes are V_1, V_2 and V_3 and the bases of two segments are parallel to the base of the original cone and the height of the cone is also equally trisected. The value of $V_1 : V_2 : V_3$ is

(a) 1 : 2 : 3
(b) 1 : 4 : 6
(c) 1 : 6 : 9
(d) 1 : 7 : 19

Q22. The ratio of the volumes of a cube and a solid sphere is 363 : 49. Thus the ratio of one side of the cube and the radius of the sphere is

[Take $\pi = 22/7$]
(a) 7 : 11
(b) 22 : 7
(c) 11 : 7
(d) 7 : 22

Q23. A semi circular sheet of metal whose diameter is 28 cm has been bent in the shape of a conical bowl. The depth of the bowl is

(a) 11 cm

(b) 12 cm

(c) 13 cm

(d) 14 cm

Q24. The radii of the circular ends of a bucket which is the part of a cone are 28 cm and 7 cm. The height of the bucket is 45 cm. The volume of bucket in cm^3 is

[Take $\pi=22/7$]

(a) 48510

(b) 45810

(c) 48150

(d) 48051

Q25. A cone, a hemisphere and a cylinder have equal bases and their heights are also equal. The ratio of their volume is

(a) 1 : 3 : 2

(b) 2 : 3 : 1

(c) 1 : 2 : 3

(d) 3 : 1 : 2

Q26. If the length of a rectangle is increased by 2 units and width is decreased by 2 units, its area decreases by 28 square unit. Similarly if length is decreased by 1 unit and width is increased by 2 units, the area increases by 33 sq. unit. The area of rectangle is?

(a) 352 sq. unit

(b) 225 sq. unit

(c) 223 sq. unit

(d) 253 sq. unit

Q27. Two roads each 5 m wide has been made , running perpendicular to each other inside a rectangular field of dimension 80 m × 60 m. The cost of spreading pebbles over them at the rate of Rs. 10 per m^2 is?

(a) Rs 6,500

(b) Rs 6,750

(c) Rs 7,000

(d) Rs 7,250

Q28. The length breadth and height of a room are in the ratio 4 : 3 : 2. If the total cost of putting a carpet on the floor is Rs. 240 at the rate of Rs. 5 per m², the cost of covering the walls of the room at the rate Rs. 2.50 per m² is?

(a) Rs. 180
(b) Rs. 200
(c) Rs. 250
(d) Rs. 280

Q29. The area of a piece of land which is in the shape of a trapezium is 1440 m². The distance between the parallel side is 24 m. If the ratio of the parallel side is 5 : 3, the length of the largest parallel side is?

(a) 75 m
(b) 45 m
(c) 120 m
(d) 60 m

Q30. The length and the breadth of a rectangular grass land are 55 m and 35 m respectively. Two roads each 4 m wide and one parallel to the length and other parallel to the width of the grass land have been made inside it. The cost of paving these roads by pebbles, at the rate of 75 paise per m² is?

(a) Rs 254.50
(b) Rs 258
(c) Rs 262.50
(d) Rs 270