Quant Mega Quiz for SSC Tier-1

Q1. ABCD is a cyclic quadrilateral. AB and DC when produced meet at P, If PA = 8 cm, PB = 6 cm, PC = 4 cm, then the length (in cm) of PD is

(a) 6
(b) 12
(c) 8
(d) 10

Q2. In a school there were 1554 students and the ratio of the number of the boys and girls was 4 : 3. After few days, 30 girls joined the school but few boys left; as a result the ratio of the boys and girls became 7 : 6. The number of boys who left the school is

(a) 84
(b) 76
(c) 86
(d) 74

Q3. If $7\sin^2\theta + 3\cos^2\theta = 4$, then the value of $\tan\theta$ is (θ is acute)

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

Q4. If $(3x - 2y) : (2x + 3y) = 5 : 6$, then one of value of $\left(\frac{\sqrt[3]{x}+\sqrt[3]{y}}{\sqrt[3]{x}-\sqrt[3]{y}}\right)^2$ is

(a) 25
(b) 1/5
(c) 1/25
(d) 5

Q5. If tan A = n tan B and sin A= m sin B, then the value of $\cos^2$ A is

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

Q6. In an office, 40% of the staff is female. 70% of the female staff and 50% of the male staff are married. The percentage of the unmarried staff in the office is

(a) 42

(b) 60

(c) 54

(d) 64

Q7. In an examination average mark obtained by the girls of a class is 85 and the average mark obtained by the boys of the same class is 87. If the girls and boys are in the ratio 4 :5, average marks of the whole class (approx) is closest to

(a) 86.4

(b) 86.1

(c) 85.9

(d) 86.5

Q8. Articles are marked at a price which gives a profit of 25%. After allowing a certain discount the profit reduces to 12 ½%. The discount percent is

(a) $\frac{121}{2}\%$

(b) 10%

(c) 12%

(d) 11.1%

Q9. If $\sin A + \sin^2 A = 1$, then the value of $\cos^2 A + \cos^4 A$ is

(a) $1\frac{2}{3}$

(b) 2

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

(d) 1

Q10. A manufacturer fixes his selling price at 33% over the cost of production. If cost of production goes up by 12% and manufacturer raises his selling price by 10%, his percentage profit is

(a) 35%

(b) $36\frac{5}{9}\%$

(c) $28\frac{3}{8}\%$

(d) $30\frac{5}{8}\%$

Q11. If $x^{17} + \frac{1}{x^{18}} = 2$, *then what will be the value of* $x^{13} + \frac{1}{x^{13}}$?

(a) –3
(b) 2
(c) 0
(d) –2

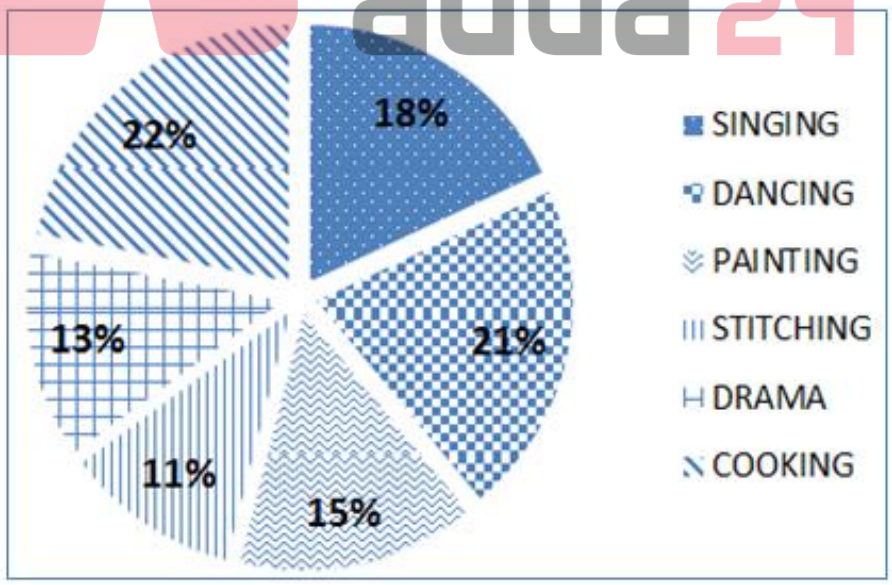
Q12. Water has been poured into an empty rectangular tank at the rate of 8 cu ft/min for 2.5 min. The length of the tank is 3 ft and the width is one half of the length. How deep is the water in the tank?

(a) 4 ft
(b) 3.86 ft
(c) 3.23 ft
(d) 4.44 ft

Q13. In a swimming pool measuring 90 m by 40 m, 150 men take a dip. If the average displacement of water by a man is 8 cu m, what will be the rise in water lever?

(a) 33.33 cm
(b) 30 cm
(c) 20 cm
(d) 25 cm

Directions (14-17): The pie-chart given below shows the percentage of 3600 students enrolled in different hobby classes in a school. Study it carefully and answer the questions that follow:



Q14. What is the total number of students enrolled in stitching and Drama classes together?

(a) 684
(b) 846
(c) 648
(d) 864

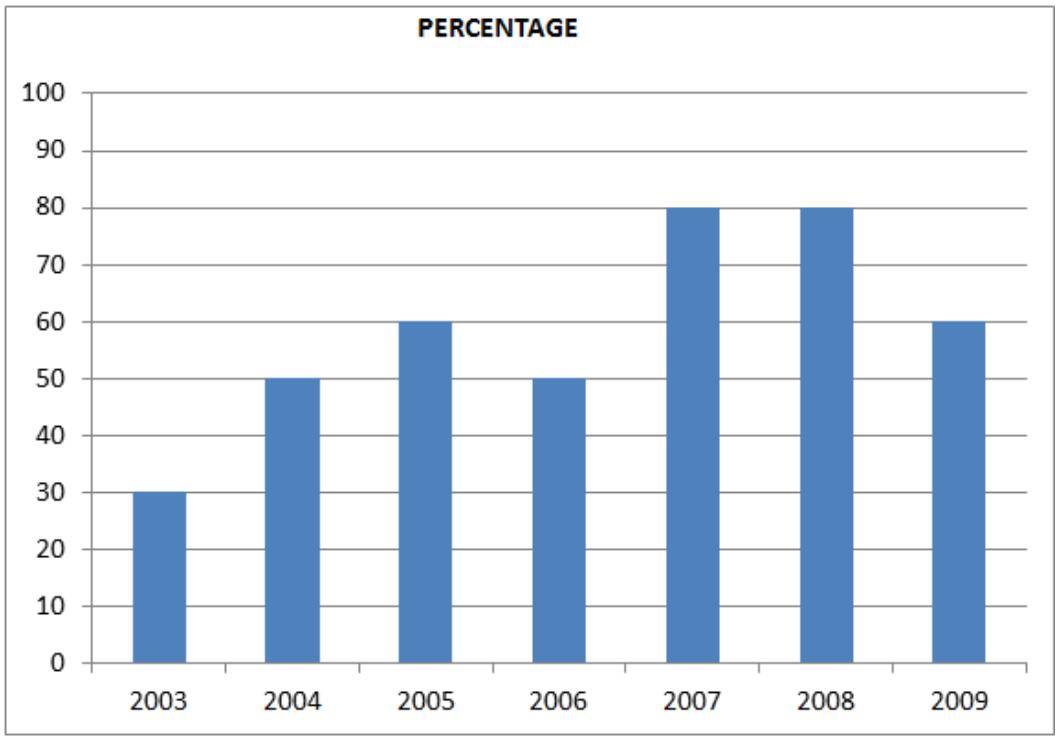
Q15. How many students are enrolled in painting classes?
(a) 550
(b) 540
(c) 450
(d) 520

Q16. Number of students enrolled in painting classes are approximately what percent of those enrolled in singing classes?
(a) 83%
(b) 92%
(c) 78%
(d) 66%

Q17. What is the ratio of number of students enrolled in singing and Dancing classes together to those enrolled in Drama classes respectively?
(a) 3 : 5
(b) 4 : 7
(c) 3 : 1
(d) None of these

Directions (18-20): The following line graph gives the percentage of the number of candidates who qualified an examination out of the total number of candidates who appeared for the examination over a period of seven years from 2003 to 2009.

Percentage of Candidates Qualified to Appeared in an Examination Over the Years



Q18. If the number of students appeared in the examination in 2004 and 2005 were in the ratio 2 : 3, then find the ratio of qualified students from these years?

(a) 2: 3
(b) 5: 6
(c) 4: 5
(d) 5:9

Q19. If the number of candidates qualified in 2007 was 5800, what was the number of candidates appeared in 2007?

(a) 7520
(b) 7250
(c) 75200
(d) 72500

Q20. If the total number of candidates appeared in 2005 and 2006 together was 42400, then the total number of candidates qualified in these two years together was?

(a) 34700
(b) 32100
(c) 31500
(d) Data insufficient

Q21. A man starts from a place P and reaches the place Q in 7 hours. He travels 1/4th of the distance at 10 km/hour and the remaining distance at 12km/hour. The distance, in kilometer, between P and Q is

(a) 72
(b) 80
(c) 90
(d) 70

Q22. If O is the circumcentre of a triangle ABC lying inside the triangle, then ∠OBC+∠BAC is equal to

(a) 110°
(b) 90°
(c) 120°
(d) 60°

Q23. The simple interest on a sum of money is 8/25 of the sum. If the number of years is numerically half the rate percent per annum, then the rate percent per annum is

(a) 8
(b) 5
(c) 6 1/4
(d) 4

Q24. In ΔABC, ∠BAC=90° and AD⊥ BC. If BD = 3 cm and CD = 4 cm, then the length (in cm) of AD is
(a) $2\sqrt{3}$
(b) 6
(c) 3.5
(d) 5

Q25. Three glasses of equal volume contains acid mixed with water. The ratio of acid and water are 2 : 3, 3 : 4 and 4 : 5 respectively. Contents of these glasses are poured in a large vessel. The ratio of acid and water in the large vessel is
(a) 407 : 560
(b) 417 : 564
(c) 411 : 540
(d) 401 : 544

Q26. If A : B = 2 : 3 and B : C = 3 : 7 then A + B : B + C : C + A is
(a) 4 : 8 : 9
(b) 5 : 8 : 9
(c) 4 : 10 : 9
(d) 5 : 10 : 9

Q27. The numerical values of the volume and the area of the lateral surface of a right circular cone are equal. If the height of the cone be h and radius, be r, the value of $\frac{1}{h^2}+\frac{1}{r^2}$ is
(a) 3/1
(b) 9/1
(c) 1/9
(d) 1/3

Q28. Two places P and Q are 162 km apart. A train leaves P for Q and simultaneously another train leaves Q for P. They meet at the end of 6 hours. It the former train travels 8km/hour faster then the other, then speed of train from Q is
(a) $9\frac{1}{2}$ km/hour
(b) $10\frac{5}{6}$ km/hour
(c) $12\frac{5}{6}$ km/hour
(d) $8\frac{1}{2}$ km/hour

Q29. If $tan\theta - cot\theta = 0$ *and* θ is positive acute angle. Then the value of $\frac{\tan(\theta+15°)}{\tan(\theta-15°)}$ is
(a) 1/3
(b) $\sqrt{3}$
(c) $1/\sqrt{3}$
(d) 3

Q30. The portion of a ditch 48 m long, 16.5 m wide and 4 m deep that can be filled with stones and earth available during excavation of a tunnel, cylindrical in shape, of a diameter 4 m and length 56 m is [Take π=22/7]

(a) 1/9 part
(b) 2/9 part
(c) 1/2 part
(d) 1/4 part