CMAT 2018 Slot 1 Question Paper - January 20 Forenoon Session

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Quantitative Techniques and Data Interpretation

Q1. How many iron balls, each of radius 1 cm, can be made from a sphere whose radius is 8 cm?

(1) 64

(2) 256

(3) 512

(4) 124

Q2. If a is between 0 and 1, which of the following statements is (are) true?

(i) $a^2 - 1 > 0$

(ii) $a^2 + 1 > 0$

(iii) $a^2 - a > 0$

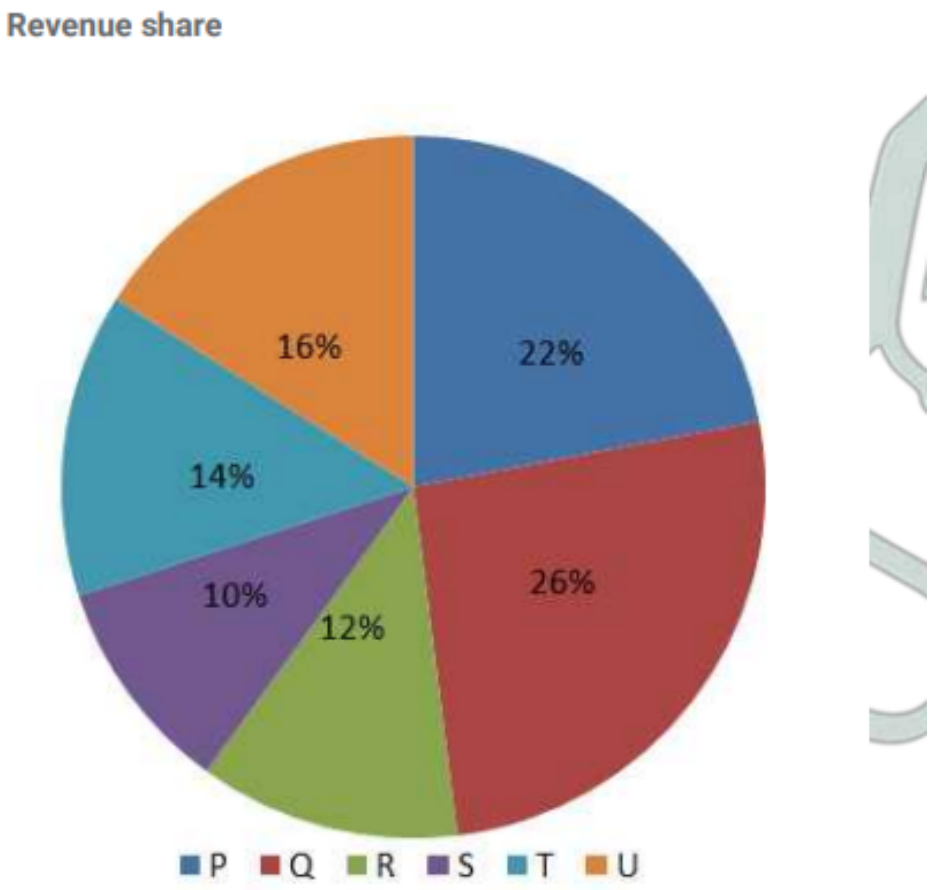
(1) Only (ii)

(2) (i) & (ii)

(3) (iii) only

(4) All three

Q3. The following pie chart provides information about the revenue share of six companies P, Q, R, S, T, U as a percentage of the total car market (in Rs.) in the year 2010. These are the only six companies producing car in the market.



If the revenue share of company T increases by 20% in the year 2011, then find the percentage increase in the revenue share of these six companies in the year 2011 assuming that all the other companies except T generated the same revenue as they did in the year 2010.

(1) 2.8%

(2) 3.2%

(3) 1.8%

(4) 2.6%

Q4. In how many years will Rs. 2 lakh double itself at 11.5% per annum simple interest?

(1) Less than 8

(2) Between 8 and 9

(3) 9.3

(4) 10.5

Q5. If $AB + C = D$, find A and C given that when $B = 6$, $D = 30$ and when $B = 8$, $D = 36$.

(1) $A = 2,\ C = 6$

(2) $A = 3,\ C = 12$

(3) $A = 6,\ C = 3$

(4) $A = 4,\ C = 3$

Q6. If $y^2 + 3y - 18 \geq 0$, which of the following is true?

(1) $y \leq 3$ or $y \geq 0$

(2) $y > -6$ or $y < 3$

(3) $-6 \leq y \leq 3$

(4) $y \geq 3$ or $y \leq -6$

Q7. In how many different ways can 3 red balls, 2 blue balls and 4 yellow balls be arranged so that the balls of the same color come together?

(1) 1742

(2) 1732

(3) 1728

(4) 1750

Q8. The following table shows the courier charges (in Rs.) for sending 1 kg parcel from one city to another. Among the following, the charges will be the least for sending a parcel from:-

Cities	Ahmedabad	Mumbai	Kolkata	Bangalore	Jaipur
Ahmedabad		10	5	15	10
Mumbai	10		7	25	20
Kolkata	5	7		20	15
Bangalore	15	25	20		10
Jaipur	10	20	15	10	

(1) Ahmedabad to Jaipur

(2) Mumbai to Bangalore

(3) Jaipur to Bangalore

(4) Kolkata to Mumbai

Q9. Three numbers $X, Y,$ and Z are in the ratio of $12 : 15 : 25$. If the sum of twice of these numbers is 614, the ratio between the difference of Y and X and the difference of Z and Y is:-

(1) $3 : 7$

(2) $5 : 1$

(3) $3 : 10$

(4) $10 : 3$

Q10. Ankush and Babulal walk around a circular track. They start at 9 a.m. from the same point in the opposite directions. Ankush and Babulal walk at a speed of 3 rounds per hour and 5 rounds per hour respectively. How many times shall they cross each other until 10.30 a.m.?

(1) 9

(2) 10

(3) 12

(4) 11

Q11. The monthly incomes of Amit and Bharat are in the ratio of $5:4$, their monthly expenses are in the ratio of $19:21$, and their monthly savings are in the ratio of $37:18$. If the total annual savings of Amit and Bharat is Rs. 1,32,000, Amit's monthly income is:-

(1) Rs. 12,000

(2) Rs. 15,000

(3) Rs. 18,000

(4) Rs. 16,000

Q12. In a circle of radius 6 cm, arc AB makes an angle of 114° with centre of the circle O. What is angle ABO?

(1) 23°

(2) 42°

(3) 38°

(4) 33°

Q13. In a survey conducted among 120 houses, it was found that 50 read Times of India, 60 read Indian Express and 48 read Hindustan Times; 20 read Times of India and Indian Express, 18 read Times of India and Hindustan Times and 24 read Indian Express and Hindustan Times. If 10 read all three, how many read only one newspaper?

(1) 50

(2) 32

(3) 64

(4) 84

Q14. The length of the minute of a watch is 42 mm. The area swept by it in 30 minutes (in mm^2) by taking π as 3.14 is:-

(1) 2769.5

(2) 44π

(3) 728

(4) 1040π

Q15. If $(x + 4)$ is a factor of $x^3 + 2x^2 + bx + 68$, what is the value of b?

(1) -9

(2) 9

(3) 8

(4) -8

Q16. Rakesh covers 12 km at 6 km/hr, 36 km at 9 km/hr and then 32 km at 4 km/hr. Find the approximate average speed in covering the whole distance.

(1) 4.2 km/hr

(2) 5.52 km/hr

(3) 5.71 km/hr

(4) 5 km/hr

Q17. Two pipes A and B can fill a cistern in 120 minutes and 150 minutes respectively. There is also an outlet C. If all the three pipes are opened together, the cistern gets filled in 100 minutes. How much time will be taken by C to empty full tank?

(1) 3 h 20 min

(2) 2 h 40 min

(3) 3 h

(4) 3 h 40 min

Q18. Ramesh works A hours a day and rests B hours a day. This pattern continues for 1 week, with an exactly opposite pattern next week, and so on for four weeks. Every fifth week he adopts a new pattern which continues for the next four weeks. When he works longer than he rests, his wage per hour is three times that he earns per hour when he rests longer than he works. The following table shows his daily working hours for the week numbered 1 to 13. A week consists of six days and a month consists of four weeks. If Ramesh is paid Rs. 60 per working hour in the 1st week, what is his salary for the 1st month? (Assume that he is paid half his wages for his resting hours on duty)

	1st Week	5th Week	9th Week	13th Week
Rest	3	4	5	
Work	6	8	9	8

(1) Rs. 6840

(2) Rs. 11400

(3) Rs. 7240

(4) None of these

Q19. In a box, there are eight yellow and four black balls. If three balls are drawn at random, what is the probability that two are yellow and one black?

(1) $\frac{1}{16}$

(2) $\frac{28}{55}$

(3) $\frac{3}{8}$

(4) $\frac{\binom{8}{2}}{\binom{4}{1}}$

Q20. If $\tan A + \cot A = \sqrt{5}$, what is the value of $\tan^3 A + \cot^3 A$?

(1) $\sqrt{5}$

(2) 3

(3) $2\sqrt{5}$

(4) $\frac{2}{\sqrt{5}}$

Q21. Two balls were bought for Rs. 37.40 at a discount of 15%. What must be the marked price of each of the ball?

(1) Rs. 11

(2) Rs. 22

(3) Rs. 33

(4) Rs. 44

Q22. Find the value of a, if: $|2a - 3| = 3a + 2$.

(1) $\frac{1}{5}$

(2) 0

(3) -5

(4) $-\frac{1}{5}$

Q23. From a jar of wine containing 32 litres, 4 litres is drawn out, and the jar is filled up with water. If the same proportion of wine is further drawn out two more times, what proportion of wine to water will be there in the resulting mixture?

(1) $245 : 166$

(2) $343 : 169$

(3) $363 : 173$

(4) $323 : 189$

Q24. The geometric mean proportion between $30 + \sqrt{200}$ and $54 - \sqrt{648}$ is:

(1) $6\sqrt{2}$

(2) $4\sqrt{5}$

(3) $6\sqrt{35}$

(4) $5\sqrt{6}$

Q25. Anil is twice as good a student as Bharat and is able to finish a work in 30 minutes less than Bharat's time. Find the time in which both of them can finish the same work together?

(1) 45 min

(2) 30 min

(3) 25 min

(4) 20 min
