CAT 2014 QA Slot 2 Question Paper

Time Allowed :2 Hours	**Maximum Marks :**198	**Total Questions :**66

General Instructions

Read the following instructions very carefully:

1. The total duration of the test is **2 hours**, with **40 minutes** allotted per section.
2. The question paper is divided into **three sections**:
   - **Section 1:** Verbal Ability and Reading Comprehension (VARC) – 24 questions
   - **Section 2:** Data Interpretation and Logical Reasoning (DILR) – 20 questions
   - **Section 3:** Quantitative Aptitude (QA) – 22 questions
3. Each correct answer carries **+3 marks**.
4. For multiple-choice questions (MCQs), **−1 mark** will be deducted for each wrong answer.
5. There is **no negative marking** for Type-in-the-Answer (TITA) questions.
6. Once the allotted time for a section ends, you will automatically move to the next section. You cannot go back to a previous section.
7. All answers must be entered on the computer screen using the mouse and keyboard. Rough sheets will be provided.
8. The use of calculators, mobile phones, or any other electronic device is strictly prohibited. An on-screen basic calculator will be provided.

1. If $x + y = 10$ and $xy = 21$, what is the value of $x^2 + y^2$?
(1) 58
(2) 60
(3) 62
(4) 64

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2. A shopkeeper sells two types of items, A and B, at a profit of 20% and 30%, respectively. If the cost price of A is Rs. 100 and B is Rs. 200, and he sells 3 items of A and 2 items of B, what is the total profit?
(1) Rs. 110
(2) Rs. 120
(3) Rs. 130
(4) Rs. 140

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3. The sum of the first n terms of an arithmetic progression is $3n^2 + 2n$. What is the 10th term?
(1) 59
(2) 60
(3) 61
(4) 62

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4. If $2x + 3y = 15$ and $x - y = 1$, what is the value of $x + y$?
(1) 4
(2) 5
(3) 6
(4) 7

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5. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less. What is the speed of the train?
(1) 40 km/h
(2) 45 km/h
(3) 50 km/h
(4) 55 km/h

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6. What is the value of $\log_2 8 + \log_3 9$?
(1) 5
(2) 6
(3) 7
(4) 8

7. A and B can complete a task in 12 days, B and C in 15 days, and A and C in 20 days. How many days will A alone take to complete the task?
(1) 24 days
(2) 30 days
(3) 36 days
(4) 40 days

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8. The area of a rectangle is 48 cm^2, and its perimeter is 28 cm. What is the length of the rectangle?
(1) 6 cm
(2) 8 cm
(3) 10 cm
(4) 12 cm

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9. If the roots of the equation $x^2 - 6x + k = 0$ are real and their product is 8, what is the value of k?
(1) 6
(2) 7
(3) 8
(4) 9

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10. A sum of money doubles in 5 years at simple interest. In how many years will it become 4 times?
(1) 10 years
(2) 12 years
(3) 15 years
(4) 20 years

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11. The ratio of the ages of A and B is 3:4. Five years hence, the ratio will be 4:5. What is the present age of A?
(1) 15 years
(2) 20 years
(3) 25 years
(4) 30 years

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12. A bag contains 3 red and 5 black balls. Two balls are drawn at random. What is the probability that both are red?
(1) $\frac{3}{28}$

(2) $\frac{3}{56}$
(3) $\frac{1}{14}$
(4) $\frac{1}{28}$

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13. If $f(x) = x^2 + 2x + 1$, what is $f(3)$?
(1) 10
(2) 12
(3) 14
(4) 16

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14. The cost price of an article is Rs. 400. If it is sold at a profit of 25%, what is the selling price?
(1) Rs. 450
(2) Rs. 475
(3) Rs. 500
(4) Rs. 525

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15. What is the value of 2^{10}?
(1) 512
(2) 1024
(3) 2048
(4) 4096

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16. A car travels 240 km in 4 hours. What is its speed in km/h?
(1) 50 km/h
(2) 60 km/h
(3) 70 km/h
(4) 80 km/h

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17. If $a^2 + b^2 = 25$ and $ab = 12$, what is $(a + b)^2$?
(1) 37
(2) 49
(3) 61
(4) 73

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18. A sum of Rs. 2000 is invested at 10% per annum compound interest. What is the amount after 2 years?
(1) Rs. 2400
(2) Rs. 2420
(3) Rs. 2440

(4) Rs. 2460

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19. The HCF of two numbers is 12, and their LCM is 144. If one number is 36, what is the other number?
(1) 24
(2) 48
(3) 72
(4) 96

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20. If $3x = 4y = 12z$, what is the ratio $x : y : z$?
(1) 4:3:1
(2) 3:4:1
(3) 4:3:2
(4) 3:4:2

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21. A pipe can fill a tank in 6 hours, and another pipe can empty it in 8 hours. If both are opened together, how long will it take to fill the tank?
(1) 12 hours
(2) 24 hours
(3) 36 hours
(4) 48 hours

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22. The sum of three numbers is 98. If the ratio of the first to the second is 2:3 and the second to the third is 5:8, what is the second number?
(1) 30
(2) 35
(3) 40
(4) 45

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23. If $\sin\theta + \cos\theta = \sqrt{2}$, what is $\sin\theta\cos\theta$?
(1) $\frac{1}{4}$
(2) $\frac{1}{2}$
(3) $\frac{\sqrt{2}}{2}$
(4) 1

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24. A man sells an article at a loss of 10%. If he had sold it for Rs. 50 more, he would have gained 5%. What is the cost price?
(1) Rs. 300
(2) Rs. 333.33
(3) Rs. 350

(4) Rs. 400

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25. The sum of the squares of three consecutive integers is 110. What is the smallest integer?
(1) 5
(2) 6
(3) 7
(4) 8

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26. A boat covers 24 km upstream and 36 km downstream in 6 hours, while it covers 36 km upstream and 24 km downstream in 6.5 hours. What is the speed of the boat in still water?
(1) 10 km/h
(2) 12 km/h
(3) 15 km/h
(4) 18 km/h

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27. The sum of a two-digit number and the number obtained by reversing its digits is 99. If the digits differ by 3, what is the number?
(1) 36
(2) 63
(3) 54
(4) 45

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28. If $x^2 - 4x + 3 = 0$, what is the value of $x^2 + \frac{1}{x^2}$?
(1) 14
(2) 16
(3) 18
(4) 20

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29. A man buys 10 kg of rice at Rs. 30 per kg and 15 kg of wheat at Rs. 20 per kg. He sells the mixture at Rs. 28 per kg. What is his profit or loss percentage?
(1) 4% profit
(2) 4% loss
(3) 5% profit
(4) 5% loss

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30. If the area of a circle is 154 cm^2, what is its circumference?
(1) 22 cm
(2) 44 cm
(3) 66 cm
(4) 88 cm

31. A man can row 6 km/h in still water. If the river flows at 2 km/h, how long will it take him to row 16 km upstream?
(1) 2 hours
(2) 3 hours
(3) 4 hours
(4) 5 hours

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32. The sum of the first 10 terms of a geometric progression is 1023, and the first term is 1. What is the common ratio?
(1) 2
(2) 3
(3) 4
(4) 5

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33. If $5^{x-1} = 25^{y+1}$, what is the value of x in terms of y?
(1) $2y + 3$
(2) $2y + 2$
(3) $2y + 1$
(4) $2y$

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34. A shopkeeper marks an article 20% above cost price and offers a 10% discount. If the cost price is Rs. 500, what is the profit?
(1) Rs. 50
(2) Rs. 60
(3) Rs. 70
(4) Rs. 80
