Number System

Model 1: Two-Digit Numbers

1. The number obtained by interchanging the two digits of a two-digit number is more than the original number by 27. If the sum of the two digits is 13, what is the original number?

   1) 63 2) 74 3) 85 4) 58 5) None of these

2. The number obtained by interchanging the two digits of a two-digit number is less than the original number by 18. The sum of the two digits of the number is 16. What is the original number?

   1) 97 2) 87 3) 79
   4) Cannot be determined 5) None of these

3. When the digits of a two-digit number are interchanged, the number obtained is less than the original number by 36. What is the original number if the difference of the two digits is 4?

   1) 84 2) 51 3) 73
   4) Cannot be determined 5) None of these

4. If the positions of the digits of a two-digit number are interchanged, the number obtained is smaller than the original number by 27. If the digits of the number are in the ratio of 1:2, what is the original number?

   1) 36 2) 63 3) 48
   4) Cannot be determined 5) None of these

5. If the digits of a two-digit number are interchanged, the number formed is greater than the original number by 45. If the difference between the digits is 5, what is the original number?

   1) 16 2) 27 3) 38

   4) Cannot be determined 5) None of these

Model 2: Consecutive Numbers

6. The sum of four consecutive even numbers is 44. What is the sum of the original squares of these numbers?

   1) 288 2) 502 3) 696 4) 920 5) None of these

7. A, B, C, D and E are five consecutive odd numbers. The sum of A and C is 146. What is the value of E?

   1) 75 2) 81 3) 71 4) 79 5) None of these

8. The product of two successive numbers is 4692. Which is the smaller of the two numbers?

   1) 69 2) 62 3) 68 4) 67 5) None of these

9. The product of two successive numbers is 9506. Which is the smaller of the two numbers?

   1) 96 2) 97 3) 98 4) 99 5) None of these

10. The product of two consecutive even numbers is 3248. Which is the larger number?

    1) 58 2) 62 3) 56 4) 60 5) None of these

11. The sum of five consecutive even numbers is 200. What is the sum of the next set of the consecutive even numbers?

1) 215 2) 235 3) 240 4) 250 5) None of these

12. The sum of five consecutive odd numbers is 575. What is the sum of the next set of the consecutive odd numbers?

1) 615 2) 635 3) 595
4) Cannot be determined 5) None of these

Model 3: Divisibility Rules

13. What is the smallest number that should be added to 89357 to make it exactly divisible by 9?

1) 1 2) 3 3) 4 4) 7 5) None of these

14. Which smallest number should be added to 86237 to make it exactly divisible by 9?

1) 11 2) 9 3) 10 4) 2 5) None of these

15. What is the smallest digit which should replace * in the number 296*12 to make it divisible by 12?

1) 1 2) 2 3) 3 4) 4 5) None of these

16. What is the smallest positive integer that should be added to 7000 to make it a perfect square?

1) 35 2) 225 3) 20 4) 56 5) None of these

Model 4: Algebra

17. The difference between two numbers is 4 and the difference between their squares is 128. What is the larger number?

    1) 14 2) 16 3) 12 4) 18 5) None of these

18. The difference between two numbers is 3 and the difference between their squares is 63. What is the larger number?

    1) 12 2) 9 3) 15

    4) Cannot be determined 5) None of these

19. On a school's annual day sweets are to be equally distributed amongst 112 children. But on that particular day, 32 children were absent. Thus, the remaining children got 6 extra sweets. How many sweets was each child originally supposed to get?

    1) 24 2) 18 3) 15

    4) Cannot be determined 5) None of these

20. There are two numbers such that the sum of twice the first number and thrice the second number is 300 and the sum of thrice the first number and twice the second number is 265. What is the larger number?

    1) 24 2) 39 3) 85 4) 74 5) None of these

21. $\frac{0.8 \text{ x } 0.8 \text{ x } 0.8 + 1.2 \text{ x } 1.2 \text{ x } 1.2}{0.8 \text{ x } 0.8 - 0.8 \text{ x } 1.2 + 1.2 \text{ x } 1.2} = ?$

    1) 4 2) 3 3) 8 4) 2 5) None of these

Model 5: Exponents

22. $2^{0.2} \times 64 \times 8^{1.3} \times 4^{0.2} = 8^{?}$

1) 2.4 2) 3.5 3) 5 4) 4 5) None of these

23. $3^{0.6} \times 81 \times 9^{1.3} \times 27^{0.2} = 3^{?}$

1) 7.8 2) 3.9 3) 4.5 4) 5.4 5) None of these

Model 6: Arrangement of Fractions

24. Arrange the given fractions in ascending order 9/17, 7/23, 11/21 and 13/19

1) 13/19, 9/17, 7/23, 11/21 2) 9/17, 11/21, 7/23, 13/19

3) 7/23, 11/21, 9/17, 13/19 4) 11/21, 9/17, 7/23, 13/19

5) None of these

25. Arrange the given fractions in descending order 3/4, 8/21, 11/17 and 13/40

1) 11/17, 3/4, 8/21, and 13/40 2) 3/4, 11/17, 8/21, and 13/40

3) 8/21, 11/17, 3/4, and 13/40 4) 13/40, 3/4, 11/17 and 8/21

5) None of these

Answers

1 - 4	2 - 1	3 - 4	4 - 2	5 - 4	6 - 5	7 - 4	8 - 3	9 - 2	10 - 1
11 - 4	12 - 5	13 - 3	14 - 5	15 - 1	16 - 4	17 - 4	18 - 1	19 - 3	20 - 4
21 - 4	22 - 2	23 - 1	24 - 3	25 - 2					

Additional Examples (English Only)

1. The difference of a number consisting of two digits from the number formed by inter-changing the digits is always divisible by

a) 10 b) 9 c) 11 d) 6

2. Number of digits in the square root of 62478078 is

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

3. The fourth root of 24010000 is –

a) 7 b) 49 c) 490 d) 70

4. A rational number between $\frac{3}{4}$ and $\frac{3}{8}$ is

a) $\frac{12}{7}$ b) $\frac{7}{3}$ c) $\frac{16}{9}$ d) $\frac{9}{16}$

5. A number x when divided by 289 leaves 18 as the remainder. The same number when divided by 17 leaves y as a remainder. The value of y is

a) 5 b) 2 c) 3 d) 1

6. A number x when divided by 49 leaves 32 as the remainder. The same number when divided by 7 leaves y as a remainder. The value of y is

a) 5 b) 2 c) 3 d) 4

7. When 'n' is divided by 5 the remainder is 2. What is the remainder when n^2 is divided by 5?

a) 2 b) 3 c) 1 d) 4

8. The sum of two numbers is 24 and their product is 143. The sum of their squares is

a) 296 b) 295 c) 290 d) 228

9. If the sum of two numbers be multiplied by each number separately, the products so obtained are 247 and 114. The sum of the numbers is

a) 19 b) 20 c) 21 d) 23

10. If aand b are odd numbers, then which of the following is even?

a) a + b + ab b) a+b-1 c) a+b+1 d) a+b+2ab

11. The number 0.121212 ___ in the form $\frac{p}{q}$ is equal to

a) $\frac{4}{11}$ b) $\frac{2}{11}$ c) $\frac{4}{33}$ d) $\frac{2}{33}$

12. $0.\overline{001}$ is equal to

a) $\frac{1}{1000}$ b) $\frac{1}{999}$ c) $\frac{1}{99}$ d) $\frac{1}{9}$

13. $\frac{4.41 \times 0.16}{2.1 \times 1.6 \times 0.21}$ is simplified to

a) 1 b) 0.1 c) 0.01 d) 10

14. By what least number should 675 be multiplied so as to obtain a perfect cube number?

a) 3 b) 5 c) 24 d) 40

15. I multiplied a natural number by 18 and another by 21 and added the products. Which of the following could be the sum?

a) 2007 b) 2008 c) 2006 d) 2002

16. When 2^{31} is divided by 5 the remainder is

a) 4 b) 3 c) 2 d) 1

17. If a and b are two odd positive integers, by which of the following integers $(a^4 - b^4)$ always divisible?

a) 3 b) 6 c) 8 d) 12

18. The number 323 has

    a) three prime factors b) five prime factors

    c) two prime factors d) no prime factor

19. The next term of the series 1, 5, 12, 24, 43 is_

    a) 51 b) 62 c) 71 d) 78

20. If 21 is added to a number, it becomes 7 less than thrice of the number. Then the number is_

    a) 14 b) 16 c) 18 d) 19

21. The numerator of a fraction is 4 less than its denominator. If the numerator is decreased by 2 and the denominator is increased by 1, then the denominator becomes eight times the numerator. Find the fraction.

    a) $\frac{3}{8}$ b) $\frac{3}{7}$ c) $\frac{4}{8}$ d) $\frac{2}{7}$

22. The greatest 4 digit number which is a perfect square, is –

    a) 9999 b) 9909 c) 9801 d) 9081

23. Find a number, one-seventh of which exceeds its eleventh part by 100.

    a) 1925 b) 1825 c) 1540 d) 1340

24. In an examination a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 75 questions and success 125 marks, the number of questions he attempts correctly is

    a) 35 b) 40 c) 42 d) 46

25. A student was asked to divide a number by 6 and add 12 to the quotient. He, however, first added 12 to the number and then divided it by 6, getting 112 as the answer. The correct

answer should have been

a) 124 b) 122 c) 118 d) 114

26. The least number, which is to be added to the greatest number of 4 digits so that the sum may be divisible by 345, is

a) 50 b) 6 c) 60 d) 5

27. The product of two numbers is 45 and their difference is 4. The sum of squares of the two numbers is

a) 135 b) 240 c) 73 d) 106

28. The ninth term of the sequence, 0, 3, 8, 15, 24, 35, ___ is

a) 63 b) 70 c) 80 d) 99

29. A number, when divided by 114, leaves remainder 21. If the same number is divided by 19, then the remainder will be

a) 1 b) 2 c) 7 d) 17

30. The square root of 0.09 is

a) 0.3 b) 0.03 c) 0.81 d) 0.081

31. $(1\frac{1}{2} + 11\frac{1}{2} + 111\frac{1}{2} + 1111\frac{1}{2})$ is equal to

a) 1236 b) $1234\frac{1}{2}$ c) 618 d) 617

32. In a question on division with zero remainder, a candidate took 12 as divisor, instead of 21. The quotient obtained by him was 35. The correct quotient is

a) 0 b) 12 c) 13 d) 20

33. The divisor is 25 times the quotient and 5 times the remainder. If the quotient is 16, then the dividend is

a) 6400 b) 6480 c) 400 d) 480

34. The numbers 2272 and 875 are divided by three digit number N, giving the same remainder. The sum of the digits of N is

a) 13 b) 10 c) 14 d) 11

35. If N, (N+2) and (N+4) are prime numbers, then the number of possible solutions for N are

a) 1 b) 2 c) 3 4) None of these

36. Find the sum of (1+0.6+0.06+0.006+0.0006+….)

a) $1\frac{2}{3}$ 2) $1\frac{1}{3}$ 3) $2\frac{1}{3}$ 4) $2\frac{2}{3}$

37. The fifth term for the sequence for which $t_1=1$, $t_2=2$ and $t_{n+2}=t_n+t_{n+1}$ is

a) 5 b) 10 c) 6 d) 8

38. The maximum integral value of n for which $\frac{n^2+n+6}{n}$ is an integer, is

a) 3 b) 2 c) 6 d) 8

39. The smallest positive prime (say p) such that 2^p-1 is not a prime, is

a) 5 b) 11 c) 17 d) 29

40. Find the number of those numbers which are between 200 and 600 and divisible by 4, 5 and 6.

a) 7 b) 10 c) 5 d) 8

Answers

1 – d	2 - d	3 - d	4 - d	5 - d	6 - d	7 - d	8 - c	9 - a	10 - d
11 - c	12 - b	13 - a	14 - b	15 - a	16 - b	17 - c	18 - c	19 - c	20 - d
21 - b	22 - c	23 - a	24 – b	25 - b	26 - b	27 - d	28 - c	29 - b	30 - a
31 - a	32 - d	33 - b	34 - b	35 - a	36 - a	37 - d	38 - d	39 - b	40 - a