Chapter - 1
Number System

Exercise

In questions 1 to 38, out of the four options, only one is correct. Write the correct answer.

1. The product of the place values of two 2's in 428721 is
(A) 4 (B) 40000 (C) 400000 (D) 40000000

Solution:
Place Value of the two 2's in 428721 is 20 and 20000 respectively.
The required product is 20 × 20000 = 400000.

Therefore, option (c) is correct.

2. 3 × 10000 + 7 × 1000 + 9 × 100 + 0 ×10 + 4 is the same as
A) 3794 (B) 37940 (C) 37904 (D) 379409

Solution:
3 × 10000 + 7 × 1000 + 9 × 100 + 0 ×10 + 4 = 30000 + 7000 + 900 + 0 + 4
=37904
Therefore, option (c) is correct.

3. If 1 is added to the greatest 7- digit number, it will be equal to
A) 10 thousand (B) 1 lakh (C) 10 lakh (D) 1 crore

Solution:
Greatest 7 digit number is 9999999.
Now, 9999999 + 1 = 10000000

Hence, if 1 is added to greatest 7 digit number it will be equal to 1 crore

Therefore, option (d) is correct.

4. The expanded form of the number 9578 is
(A) 9 × 10000 + 5 × 1000 + 7 × 10 + 8 × 1
(B) 9 × 1000 + 5 × 100 + 7 × 10 + 8 × 1
(C) 9 × 1000 + 57 × 10 + 8 × 1
(D) 9 × 100 + 5 × 100 + 7 × 10 + 8 × 1

Solution:
Expanded form of 9578 = 9 × 1000 + 5 × 100 + 7 × 10 + 8 × 1

Therefore, option (b) is correct.

5. When rounded off to nearest thousands, the number 85642 is
A) 85600 (B) 85700 (C) 85000 (D) 86000

Solution:
85642 when rounded off to nearest thousands will be 86000 (Since, 642 is greater than 500, therefore, the number will be rounded off to the subsequent nearest thousand)

Hence, option (d) is correct.

6. The largest 4-digit number, using any one digit twice, from digits 5, 9, 2 and 6 is
A) 9652 (B) 9562 (C) 9659 (D) 9965

Solution:
The largest 4-digit number using any one digit twice, from digits 5, 9, 2 and 6 is 9965

Therefore, option (d) is correct.

7. In Indian System of Numeration, the number 58695376 is written as
(A) 58, 69, 53, 76
(B) 58,695,376
(C) 5, 86, 95,376
(D) 586, 95,376

Solution:
In Indian System of Numeration, the number 58695376 is written as:
5, 86, 95,376

Therefore, option (c) is correct.

8. One million is equal to
(A) 1 lakh (B) 10 lakh (C) 1 crore (D) 10 crore

Solution:
One million i.e., 1,000,000 in Indian System of Numeration is equal to 10, 00,000 i.e., ten lakh.

Therefore, option (b) is correct.

9. The greatest number which on rounding off to nearest thousands gives 5000, is
A) 5001 (B) 5559 (C) 5999 (D) 5499

Solution:

Out of the given options the greatest number which on rounding off to nearest thousands give 5000 is 5499

Hence, option (d) is correct.

10. Keeping the place of 6 in the number 6350947 same, the smallest number obtained by rearranging other digits is
A) 6975430 (B) 6043579 (C) 6034579 (D) 6034759

Solution:
The smallest number obtained by rearranging other digits keeping the place of 6 in the given number is 6034579.

Therefore, option (c) is correct.

11. Which of the following numbers in Roman numerals is incorrect?
A) LXXX (B) LXX (C) LX (D) LLX

Solution:
There is no such number as LLX in Roman numerals.

Therefore, option (d) is incorrect.

12. The largest 5-digit number having three different digits is
A) 98978 (B) 99897 (C) 99987 (D) 98799

Solution:
The largest 5 digit number having three different digits is 99987.

Therefore, option (c) is correct.

13. The smallest 4-digit number having three different digits is
A) 1102 (B) 1012 (C) 1020 (D) 1002

Solution:
The smallest 4 digit number having three different digits from the given options is 1002.

Therefore, option (d) is correct.

14. Number of whole numbers between 38 and 68 is
(A) 31 (B) 30 (C) 29 (D) 28

Solution:
Number of whole numbers between 38 and 68 i.e., from 39 to 67 is 29.

Therefore, option (c) is correct.

15. The product of successor and predecessor of 999 is
A) 999000 (B) 998000 (C) 989000 (D) 1998

Solution:
Successor of 999 is 1000
Predecessor of 999 is 998
Product: 1000 × 998 = 998000

Therefore, option (b) is correct.

16. The product of a non-zero whole number and its successor is always
(A) an even number
(B) an odd number
(C) a prime number
(D) divisible by 3

Solution:
In a pair of a non-zero whole number and its successor, one will be an even number and other will be and odd number. The product of an even and an odd number is an even number only. Hence, the product of a non-zero whole number and its successor is always an even number.

Therefore, option (a) is correct.

17. A whole number is added to 25 and the same number is subtracted from 25. The sum of the resulting numbers is
(A) 0 (B) 25 (C) 50 (D) 75

Solution:
Let the number be x.
When added to 25, the resultant will be x + 25.
When subtracted from 25, the resultant will be 25 – x.
The sum of the resulting number is given as:
x + 25 + 25 - x = 50

Therefore, option (a) is correct.

18. Which of the following is not true?
(A) (7 + 8) + 9 = 7 + (8 + 9)
(B) (7 × 8) × 9 = 7 × (8 × 9)
(C) 7 + 8 × 9 = (7 + 8) × (7 + 9)
(D) 7 × (8 + 9) = (7 × 8) + (7 × 9)

Solution:

$7 + 8 \times 9 = (7 + 8) \times (7 + 9)$
LHS $= 7 + 8 \times 9$
$= 7 + 72$
$= 79$

RHS $= (7 + 8) \times (7 + 9)$
$= 15 \times 16$
$= 240$

Here, LHS $\neq$ RHS

Therefore, (c) is the correct option.

19. By using dot (.) patterns, which of the following numbers can be arranged in all the three ways namely a line, a triangle and a rectangle?
A) 9 (B) 10 (C) 11 (D) 12

Solution:
Minimum number of dots to form a line is 2.
Minimum number of dots to form a triangle is 3.
Minimum number of dots to form a rectangle is 4.
Therefore, minimum number of dots in which a line, a triangle and a rectangle can be arranged is LCM (2, 3, 4) = $2 \times 2 \times 3 = 12$

Therefore, option (d) is correct.

20. Which of the following statements is not true?
A) Both addition and multiplication are associative for whole numbers.
(B) Zero is the identity for multiplication of whole numbers.
(C) Addition and multiplication both are commutative for whole numbers.
(D) Multiplication is distributive over addition for whole numbers.

Solution:
Zero is identity for addition of whole numbers. In case of multiplication of a whole number by zero, the result is zero only.

Therefore, option (b) is correct.

21. Which of the following statements is not true?
(A) 0 + 0 = 0 (B) 0 – 0 = 0 (C) 0 × 0 = 0 (D) 0 ÷ 0 = 0

Solution:
Zero divided by zero is not defined.

Therefore, option (d) is correct choice.

22. The predecessor of 1 lakh is
(A) 99000 (B) 99999 (C) 999999 (D) 100001

Solution:
Predecessor of 1 lakh is 1, 00,000 - 1 = 99999

Therefore, option (b) is correct.

23. The successor of 1 million is
(A) 2 millions (B) 1000001 (C) 100001 (D) 10001

Solution:
Successor of 1 million is 1,000,000 + 1 = 1,000,001

Therefore, option (b) is correct.

24. Number of even numbers between 58 and 80 is
A) 10 (B) 11 (C) 12 (D) 13

Solution:
Even numbers between 58 and 80 are:
60, 62, 64, 66, 68, 70, 72, 74, 76, 78
Thus, there are ten even numbers between 58 and 80.

Therefore, option (a) is correct.

25. Sum of the number of primes between 16 to 80 and 90 to 100 is
A) 20 (B) 18 (C) 17 (D) 16

Solution:
Number of primes between 16 and 80 = 16
Number of primes between 90 and 100 = 1
Required sum is 16 + 1 = 17

Therefore, option (c) is correct.

26. Which of the following statements is not true?
(A) The HCF of two distinct prime numbers is 1
(B) The HCF of two co prime numbers is 1
(C) The HCF of two consecutive even numbers is 2
(D) The HCF of an even and an odd number is even.

Solution:
The HCF of an even and an odd number is odd.

Therefore, (d) is the correct option.

27. The number of distinct prime factors of the largest 4-digit number is
A) 2 (B) 3 (C) 5 (D) 11

Solution:
Largest 4 digit number = 9999
Prime factors of 9999 = 3 × 3 × 11 × 101
Thus, number of distinct prime factors is 3.

Therefore, (b) is the correct option.

28. The number of distinct prime factors of the smallest 5-digit number is
A) 2 (B) 4 (C) 6 (D) 8

Solution:
Smallest 5 digit number = 10000
Prime factors of 9999 = 2 × 2 × 2 × 2 × 5 × 5 × 5 × 5
Thus, number of distinct prime factors is 2.

Therefore, (a) is the correct option.

29. If the number 7254*98 is divisible by 22, the digit at * is
A) 1 (B) 2 (C) 6 (D) 0

Solution:
For a number to be divisible by 22, it must be divisible by 2 and 11.
Since the given number ends with an even number, therefore, it is divisible by 2.
For the number to be divisible by 11, the difference of the sum of alternate digits of the number must be zero or a multiple of 11. Therefore,
(7 + 5 + * + 8) - (2 + 4 + 9) = 0 or 11
20 + * - 15 = 0 or 11
5 + * = 0 or 11
* = 11 - 5
* = 6 (Since, here * ≠ -5)
Therefore, (c) is the correct option.

30. The largest number which always divides the sum of any pair of consecutive odd numbers is
(A) 2 (B) 4 (C) 6 (D) 8

Solution:
The largest number which always divides the sum of any pair of consecutive odd numbers is 4.
For example, 1 + 3 = 4 which is divisible by four.

Therefore, option (b) is correct.

31. A number is divisible by 5 and 6. It may not be divisible by
(A) 10 (B) 15 (C) 30 (D) 60

Solution:
A number divisible by 5 and 6 may not be divisible by 60.
For example, 90 is divisible by both 5 and 6 but indivisible by 60.

Therefore, option (d) is correct.

32. The sum of the prime factors of 1729 is
(A) 13 (B) 19 (C) 32 (D) 39

Solution:
The prime factors of 1729 is 7, 13 and 19.
Sum of the prime factors is 7 + 13 + 19 = 39

Therefore, option (d) is correct.

33. The greatest number which always divides the product of the predecessor and successor of an odd natural number other than 1, is
(A) 6 (B) 4 (C) 16 (D) 8

Solution:
The greatest number which always divides the product of the predecessor and successor of an odd natural number other than 1 is 8.
For example, 3 is an odd number.
Successor is 4 and predecessor is 2
Product: $4 \times 2 = 8$ which is divisible by 8.

Therefore, option (d) is correct.

34. The number of common prime factors of 75, 60, and 105 is
(A) 2 (B) 3 (C) 4 (D) 5

Solution:
The common prime factors of 75, 60, 105 are 3 and 5.
Therefore, the number of common prime factors of 75, 60, 105 is 2

Therefore, option (a) is correct.

35. Which of the following pairs is not coprime?
A) 8, 10 (B) 11, 12 (C) 1, 3 (D) 31, 33

Solution:
Coprime are the pair of numbers having only 1 as a common factor between them. 8 and 10 has 1 and 2 as common factor.

Therefore, option (a) is correct.

36. Which of the following numbers is divisible by 11?
A) 1011011 (B) 1111111 (C) 22222222 (D) 3333333

Solution:
22222222 when divided by 11 give 2020202 as quotient and leaves no remainder. Thus, 22222222 is divisible by 11

Therefore, option (c) is correct.

37. LCM of 10, 15 and 20 is
A) 30 (B) 60 (C) 90 (D) 180

Solution:
Prime factors of 10 = 2 × 5
Prime factors of 15 = 3 × 5
Prime factors of 20 = 2 × 2 × 5
LCM of 10, 15 and 20 is 2 × 2 × 3 × 5 = 60

Therefore, option (b) is correct.

38. LCM of two numbers is 180. Then which of the following is not the HCF of the numbers?
(A) 45 (B) 60 (C) 75 (D) 90

Solution:
If the LCM of two numbers is 180 then 75 cannot be the HCF of the two numbers as it does not divides the LCM completely.

Therefore, option (c) is correct.

In questions 39 to 98 state whether the given statements are true (T) or false (F).

39. In Roman numeration, a symbol is not repeated more than three times.

Solution:
True.
A symbol is not repeated more than three times in Roman numerals

40. In Roman numeration, if a symbol is repeated, its value is multiplied as many times as it occurs.

Solution:

False.
In Roman numeration, if a symbol is repeated, its value is added as many times as it occurs.

41. 5555 = 5 × 1000 + 5 × 100 + 5 × 10 + 5 × 1

Solution:

True.
5555 in expanded form is written as 5 × 1000 + 5 × 100 + 5 × 10 + 5 × 1

42. 39746 = 3 × 10000 + 9 × 1000 + 7 × 100 + 4 × 10 + 6

Solution:

True.
39746 in expanded form is written as 3 × 10000 + 9 × 1000 + 7 × 100 + 4 × 10 + 6

43. 82546 = 8 × 1000 + 2 × 1000 + 5 × 100 + 4 × 10 + 6

Solution:

False.
82546 in expanded form is written as 8 × 10000 + 2 × 1000 + 5 × 100 + 4 × 10 + 6× 1

44. 532235 = 5 × 100000 + 3 × 10000 + 2 × 1000 + 2 × 100 + 3 × 10 + 5

Solution:

True.
532235 in expanded form is written as 5 × 100000 + 3 × 10000 + 2 × 1000 + 2 × 100 + 3 × 10 + 5

45. XXIX = 31

Solution:

False.
XXIX = 10 + 10 + (10 - 1) = 10 + 10 + 9
= 29

46. LXXIV = 74

Solution:

True
LXXIV = 50 + 10 + 10 + (5 - 1)
= 50 + 10 + 10+ 4

= 74

47. The number LIV is greater than LVI.

Solution:

False.

LIV = 50 + (5 - 1)
= 50 + 4
= 54

LVI = 50 + 5 + 1
= 56

48. The numbers 4578, 4587, 5478, and 5487 are in descending order.

Solution:

False.

The numbers are in ascending order.

49. The number 85764 rounded off to nearest hundreds is written as 85700.

Solution:

False.

85764 rounded off to nearest hundreds is written as 85800.

50. Estimated sum of 7826 and 12469 rounded off to hundreds is 20,000.

Solution:

True.

7826 + 12469 = 20295 rounded off to hundreds is 20,000

51. The largest six digit telephone number that can be formed by using digits 5, 3, 4, 7, 0, 8 only once is 875403.

Solution:

False.

The largest six digit telephone number that can be formed by using digits 5, 3, 4, 7, 0, 8 only once is 875430.

52. The number 81652318 will be read as eighty one crore six lakh fifty two thousand three hundred eighteen.

Solution:

False.

It will be read as eight crore sixteen lakh fifty two thousand three hundred eighteen.

53. The largest 4-digit number formed by the digits 6, 7, 0, 9 using each digit only once is 9760

Solution:

True

The largest 4-digit number formed by the digits 6, 7, 0, 9 using each digit only once is 9760

54. Among kilo, milli and centi, the smallest is centi.

Solution:

False.

Among kilo, milli and centi, the smallest is milli.

55. Successor of a one digit number is always a one digit number.

Solution:

False.

9 is a one digit number but its successor is 10 which is a two digit number.

56. Successor of a 3-digit number is always a 3-digit number.

Solution:

False.

999 is a three digit number but its successor is 1000 which is a four digit number.

57. Predecessor of a two digit number is always a two digit number.

Solution:

False.

10 is a two digit number but its predecessor is 9 which is a one digit number.

58. Every whole number has its successor.

Solution:

True.

Every whole number has its successor.

59. Every whole number has its predecessor.

Solution:

True.

Every whole number has its predecessor.

60. Between any two natural numbers, there is one natural number.

Solution:

False.
Between any two natural numbers there can be no natural number too.

61. The smallest 4-digit number is the successor of the largest 3-digit number.

Solution:

True.
The smallest 4 digit number 1000 is the successor of the largest 3 digit number.

62. Of the given two natural numbers, the one having more digits is greater.

Solution:

False.
Two natural numbers can have same digits. For example, 15 and 17.

63. Natural numbers are closed under addition.

Solution:

True.
Natural numbers are closed under addition.

64. Natural numbers are not closed under multiplication.

Solution:

False.
Natural number are closed under multiplication.

65. Natural numbers are closed under subtraction.

Solution:

False.
Natural numbers are not closed under subtraction. Subtraction of two naatural numbers can be a negative integer or zero too.

66. Addition is commutative for natural numbers.

Solution:

True.
Addition is commutative for natural numbers.

67. 1 is the identity for addition of whole numbers.

Solution:

False.
0 is the identity for addition of whole numbers.

68. 1 is the identity for multiplication of whole numbers.

Solution:

True.
1 is the identity for multiplication of whole numbers.

69. There is a whole number which when added to a whole number, gives the number itself.

Solution:

True.
0 is a whole number which when added to a whole number gives the number only.

70. There is a natural number which when added to a natural number, gives the number itself.

Solution:

False.
There is no natural number which when added to a natural number gives the number itself.

71. If a whole number is divided by another whole number, which is greater than the first one, the quotient is not equal to zero.

Solution:

True.
If a whole number is divided by another whole number, which is greater than the first one, the quotient is not equal to zero.

72. Any non-zero whole number divided by itself gives the quotient 1.

Solution:

True.
Any non-zero whole number divided by itself gives the quotient 1.

73. The product of two whole numbers need not be a whole number.

Solution:

False.
The product of two whole numbers is a whole number.

74. A whole number divided by another whole number greater than 1 never gives the quotient equal to the former.

Solution:

True.
A whole number divided by another whole number greater than 1 never gives the quotient equal to the former.

75. Every multiple of a number is greater than or equal to the number.

Solution:

True.
Every multiple of a number is greater than or equal to the number.

76. The number of multiples of a given number is finite.

Solution:

False.
The number of multiples of a given number is infinite.

77. Every number is a multiple of itself.

Solution:

True.
Every number is a multiple of itself.

78. Sum of two consecutive odd numbers is always divisible by 4.

Solution:

True.
Sum of two consecutive off numbers is always divisible by 4.

79. If a number divides three numbers exactly, it must divide their sum exactly

Solution:

True.
A number dividing any three numbers exactly must exactly divide their sum too.

80. If a number exactly divides the sum of three numbers, it must exactly divide the numbers separately.

Solution:

False.

It is not necessary that if a number exactly divides the sum of three numbers it will also exactly divide the numbers separately.

81. If a number is divisible both by 2 and 3, then it is divisible by 12.

Solution:

False.
If a number is divisible by both 2 and 3, then it is not necessarily divisible by 12. for example, 18 is divisible by both 2 and 3 but is not divisible by 12.

82. A number with three or more digits is divisible by 6, if the number formed by its last two digits (i.e., ones and tens) is divisible by 6.

Solution:

False.
A number is divisible by 6 if it is divisible by both 2 and 3.

83. A number with 4 or more digits is divisible by 8, if the number formed by the last three digits is divisible by 8.

Solution:

True.
A number with 4 or more digits is divisible by 8, if the number formed by the last three digits is divisible by 8.

84. If the sum of the digits of a number is divisible by 3, then the number itself is divisible by 9.

Solution:

False.
It is not necessary that if the sum of the digits of a number is divisible by 3, then the number is divisible by 9. For example, 51 is divisible by 3 as 5 + 1 is divisible by 6 but it is not divisible by 9.

85. All numbers which are divisible by 4 may not be divisible by 8.

Solution:

True.
A number divisible by 4 may not be divisible by 8. For example, 12 is divisible by 4 but not by 8.

86. The Highest Common Factor of two or more numbers is greater than their Lowest Common Multiple.

Solution:

False.
The HCF of two or more numbers is less than their LCM.

87. LCM of two or more numbers is divisible by their HCF.

Solution:
True.
The LCM of two or more numbers is divisible by their HCF.

88. LCM of two numbers is 28 and their HCF is 8.

Solution:
False.
24 is not divisible by 8 therefore, the statement cannot be true.

89. LCM of two or more numbers may be one of the numbers.

Solution:
True.
The LCM of two or more numbers may be one of the numbers. For example, LCM of 8 and 16 is 16.

90. HCF of two or more numbers may be one of the numbers.

Solution:
True.
HCF of two or more numbers may be one of the numbers. For example, HCF of 11 and 33 is 11.

91. Every whole number is the successor of another whole number.

Solution:
True.
Every whole number is the successor of another whole number.

92. Sum of two whole numbers is always less than their product.

Solution:
False.
Sum of 1 and 4 is 5 and their product is 4.

93. If the sum of two distinct whole numbers is odd, then their difference also must be odd.

Solution:

True.
If the sum of two distinct whole numbers is odd then, one of the number is odd and hence their difference will also be odd.

94. Any two consecutive numbers are coprime.

Solution:
True.
Any two consecutive numbers are coprime.

95. If the HCF of two numbers is one of the numbers, then their LCM is the other number

Solution:
True.
If the HCF of two numbers is one of the numbers then their LCM is the other number.

96. The HCF of two numbers is smaller than the smaller of the numbers.

Solution:
False.
The HCF of two numbers is not always smaller than the smaller of the numbers, it can be equal to the smaller number too.

97. The LCM of two numbers is greater than the larger of the numbers.

Solution:
False.
The LCM of two numbers is greater than or equal the larger of the two numbers.

98. The LCM of two coprime numbers is equal to the product of the numbers.

Solution:
True.
LCM of coprime numbers is equal to the product of the numbers.

In questions 99 to 151, fill in the blanks to make the statements true.

99. (a) 10 million = _____ crore.
(b) 10 lakh = _____ million.

Solution:

(a) 10 million = 10,000,000 in International system of numbers.
In Indian system of numbers it is written as 1, 00, 00,000 which is equivalent to 1 crore.
10 million = 1 crore

(b) 10 lakh = 10, 00,000 in Indian system of numbers.
In International system of numbers, it is written as 1,000,000 which is equivalent to 1 million.
10 lakh = 1 million.

100. (a) 1 metre = _____ millimetres.
(b) 1 centimetre = _____ millimetres.
(c) 1 kilometre = _____ millimetres.

Solution:
(a) 1 metre = 1000 millimeters.

(b) 1 centimetre = 10 millimeters.

(c) 1 kilometre = 1000000 millimeters

101. (a) 1 gram = _____ milligrams.
(b) 1 litre = _____ millilitres.
(c) 1 kilogram = _____ miligrams.

Solution:
(a) 1 gram = 1/1000 milligrams.

(b) 1 litre = 1000 millilitres.

(c) 1 kilogram = 1000000 miligrams.

102. 100 thousands = _____ lakh.

Solution:
100 thousands is written as 100,000 which is equivalent to 1 lakh.
100 thousands = 1 lakh.

103. Height of a person is 1m 65cm. His height in millimetres is_____.

Solution:
We know that, 1m = 1000 mm and 1cm = 10 mm
Therefore, 1m 65cm is equal to 1 x 1000 + 65 x 10 = 1650 mm.
Height of a person is 1m 65cm. His height in millimetres is 1650 mm.

104. Length of river 'Narmada' is about 1290km. Its length in metres is_____.

Solution:
1 km = 1000 m
1290 km = 1290000 m
Length of river 'Narmada' is about 1290km. Its length in metres is 1290000 m.

105. The distance between Sringar and Leh is 422km. The same distance in metres is_____.

Solution:
1 km = 1000 m and so 422 km = 422000 m
The distance between Sringar and Leh is 422km. The same distance in metres is 422000 m.

106. Writing of numbers from the greatest to the smallest is called an arrangement in _____ order.

Solution:
When a series of numbers is written form greatest to smallest, it is termed as writing the series in decreasing order.
Writing of numbers from the greatest to the smallest is called an arrangement in decreasing order.

107. By reversing the order of digits of the greatest number made by five different non-zero digits, the new number is the _____ number of five digits.

Solution:
If the order of the greatest possible number is reversed, it will end up being the smallest number. Let say number is pqrst and for greatest number p>q>r>s>t. Now if the order of digits is reversed, new number is tsrqp and t<s<r<q<p and this implies tsrqp is smallest number.
By reversing the order of digits of the greatest number made by five different non-zero digits, the new number is the smallest number of five digits.

108. By adding 1 to the greatest_____ digit number, we get ten lakh.

Solution:
We will get ten lakh only if we add 1 to 999999 which the the greatest 6 digit number.
By adding 1 to the greatest 6 digit number, we get ten lakh.

109. The number five crore twenty three lakh seventy eight thousand four hundred one can be written, using commas, in the Indian System of Numeration as _____.

Solution:

According to **Indian numbering system, firstly** rightmost three digits are grouped together (until the hundreds place), and after that groups are formed in sets of two digits.

The number five crore twenty three lakh seventy eight thousand four hundred one can be written, using commas, in the Indian System of Numeration as 5, 23, 78,401.

110. In Roman Numeration, the symbol X can be subtracted from_____, M and C only.

Solution:

There are certain numerals which get subtracted and X can be subtracted from L, M and C only.
In Roman Numeration, the symbol X can be subtracted from L, M and C only.

111. The number 66 in Roman numerals is_____.

Solution:

66 can be written as 50 + 10 + 5 + 1 and according to Roman Numerals it's equivalent to LXVI.
The number 66 in Roman numerals is LXVI.

112. The population of Pune was 2,538,473 in 2001. Rounded off to nearest thousands, the population was _____.

Solution:

If rounded off to nearest thousand population will certainly be in 2,538,000.
The population of Pune was 2,538,473 in 2001. Rounded off to nearest thousands, the population was 2,538,000.

113. The smallest whole number is_____.

Solution:

Whole number series starts from 0, so smallest whole number is 0.
The smallest whole number is 0.

114. Successor of 106159 is _____.

Solution:

Successor of any number is one greater than the given number so, successor of 106159 is 106159 + 1 = 106160
Successor of 106159 is 106160.

115. Predecessor of 100000 is_____.

Solution:

Predecessor of any number is one less than the given number so, Predecessor of 100000 is 100000 - 1 = 9999
Predecessor of 100000 is 9999.

116. 400 is the predecessor of _____.

Solution:
Predecessor of any number is one less than the given number so it is obvious that 400 is the Predecessor of 401 as 410 - 1 = 400.
400 is the predecessor of 401.

117. _____ is the successor of the largest 3 digit number.

Solution:
Successor of any number is one greater than the given number. Sincle largest three digit number is 999 so, successor of 999 is 999 + 1 = 1000.
1000 is the successor of the largest 3 digit number.

118. If 0 is subtracted from a whole number, then the result is the _____ itself.

Solution:
If 0 is subtracted from a whole number, it will not impact the value of the number and we will get the number itself in return.
If 0 is subtracted from a whole number, then the result is the number itself.

119. The smallest 6 digit natural number ending in 5 is _____.

Solution:
Smallest 6 digit number is 100000 and for the smallest 6 digit natural number ending in 5 will be definitely 100005.
The smallest 6 digit natural number ending in 5 is 100005.

120. Whole numbers are closed under _____ and under_____.

Solution:
In some cases whole numbers are closed under both addition and subtraction.
Whole numbers are closed under addition and under subtraction.

121. Natural numbers are closed under _____ and under_____.

Solution:
In some cases natural numbers are closed under both addition and subtraction.
Natural numbers are closed under addition and under subtraction.

122. Division of a whole number by _____ is not defined.

Solution:
If any whole number is divided by 0, it results to non-defined.
Division of a whole number by 0 is not defined.

123. Multiplication is distributive over _____ for whole numbers.

Solution:
We know that, a × (b + c) = a × b + a × c. Hence multiplication of whole numbers is distributive over addition.
Multiplication is distributive over addition for whole numbers.

124. 2395 × _____ = 6195 × 2395

Solution:
By commutative property of multiplication A × B = B × A.
2395 × 6195 = 6195 × 2395

125. 1001 × 2002 = 1001 × (1001+_____)

Solution:
Number 2002 can be written as 2002 = 1001 + 1001
So, 1001 × 2002 = 1001 × (1001+ 1001).
1001 × 2002 = 1001 × (1001+ 1001)

126. 10001 × 0 = _____

Solution:
If any number is multiplied with 0, it gives 0 in return.
10001 × 0 = 0

127. 2916 × _____ = 0

Solution:
If any number is multiplied with 0, it gives 0 in return.
2916 × 0 = 0

128. 9128 × _____ = 9128

Solution:
If any number is multiplied with 1, it gives the number itself.
9128 × 1 = 9128

129. 125 + (68+17) = (125 + _____) + 17

Solution:
According to associative property of addition, A + (B+C) = (A+B) + C.
125 + (68+17) = (125 + 68) + 17

130. 8925 ×1 = _____

Solution:
If any number is multiplied with 1, it gives the number itself.
8925 ×1 = 8925

131. 19 × 12 + 19 = 19 × (12 + _____)

Solution:
According to BODMAS rule, both sides shall be equivalent.
19 × 12 + 19 = 19 × (12 + 1)

132. 24 × 35 = 24 × 18 + 24 × _____

Solution:
According to BODMAS rule, both sides shall be equivalent.
24 × 35 = 24 × 18 + 24 × 17

133. 32 × (27 × 19) = (32 × _____) × 19

Solution:
According to associative property of multiplication, A x (B x C) = (A x B) x C.
32 × (27 × 19) = (32 × 27) × 19

134. 786 × 3 + 786 × 7 = _____

Solution:
According to BODMAS rule, firstly number shall be multiplied and then added.
786 × 3 + 786 × 7 = 7850

135. 24 × 25 = 24 × _____

Solution:
By commutative property of multiplication A x B = B x A.
24 × 25 = 24 × 25

136. A number is a _____ of each of its factor.

Solution:
A number is divisible by each of its factor so it is also called as multiple of each of its factor.
A number is a multiple of each of its factor.

137. _____ is a factor of every number.

Solution:
Every number is divisible by 1 and so 1 is a factor of every number.

1 is a factor of every number.

138. The number of factors of a prime number is_____.

Solution:
Prime number has only two factors, one and the number itself.

The number of factors of a prime number is two.

139. A number for which the sum of all its factors is equal to twice the number is called a _____ number.

Solution:
Such a number where the sum of all its factors is equal to twice the number is termed a perfect number.

A number for which the sum of all its factors is equal to twice the number is called a perfect number.

140. The numbers having more than two factors are called _____ numbers.

Solution:
Composite numbers are the numbers which have more than two factors.

The numbers having more than two factors are called composite numbers.

141. 2 is the only _____ number which is even.

Solution:
No number other than 2 is prime and even.
2 is the only prime number which is even.

142. Two numbers having only 1 as a common factor are called_____ numbers.

Solution:
Prime numbers have only 1 as a common factor.

Two numbers having only 1 as a common factor are called prime numbers.

143. Number of primes between 1 to 100 is _____.

Solution:
Prime Numbers between 1 and 100 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97 which are 25 in total.

Number of primes between 1 to 100 is 25.

144. If a number has _____ in one's place, then it is divisible by 10.

Solution:
The divisibility of 10 implies that, if there will be 0 in one's place in a number, then the number will be divisible by 10.
If a number has 0 in one's place, then it is divisible by 10.

145. A number is divisible by 5, if it has _____ or _____ in its ones place.

Solution:
The divisibility of 5 implies that, if there will be 0 or 5 in one's place in a number, then the number will be divisible by 5.
A number is divisible by 5, if it has 0 or 5 in its ones place.

146. A number is divisible by _____ if it has any of the digits 0, 2, 4, 6, or 8 in its ones place.

Solution:
If a number has 0,2,4,6 or 8 in its ones place then the number is said to be divisible by 2.
A number is divisible by 2 if it has any of the digits 0, 2, 4, 6, or 8 in its ones place.

147. If the sum of the digits in a number is a _____ of 3, then the number is divisible by 3.

Solution:
According to divisibility test of 3, a number is divisible by 3 if the sum of digits of the number is divisible by 3.
If the sum of the digits in a number is a multiple of 3, then the number is divisible by 3.

148. If the difference between the sum of digits at odd places (from the right) and the sum of digits at even places (from the right) of a number is either 0 or divisible by _____, then the number is divisible by 11.

Solution:
The divisibility rule of 11 suggests that the difference between the sum of digits at odd places (from the right side) and the sum of digits at even places (from the right side) of a number is either 0 or divisible by 11, and then the number is completely divisible by 11.

If the difference between the sum of digits at odd places (from the right) and the sum of digits at even places (from the right) of a number is either 0 or divisible by11 then the number is divisible by 11.

149. The LCM of two or more given numbers is the lowest of their common _____.

Solution:

LCM by definition is defined as least common factor between two or more given numbers. The LCM of two or more given numbers is the lowest of their common factor.

150. The HCF of two or more given numbers is the highest of their common _____.

Solution:

HCF by definition is defined as highest common factor between two or more given numbers. The HCF of two or more given numbers is the highest of their common factor.

151. Given below are two columns – Column I and Column II. Match each item of Column I with the corresponding item of Column II.

Column I	Column II
The difference of two consecutive whole numbers	odd
The product of two non-zero consecutive whole numbers	(b) 0
Quotient when zero is divided by another non-zero whole number	(c) 3
2 added three times, to the smallest whole number	(d) 1
Smallest odd prime number	(e) 6 (f) even

Solution:

(i)

The difference of two consecutive whole numbers say, 5 and 6 is 6 - 5=1,

Difference is always 1. So (i) match with option (d).

(ii)
The product of two non-zero consecutive whole numbers say, 3 and 4 is = 3 × 4= 12, which is even. So (ii) match with option (f).

(iii)
When zero is divided by another non-zero whole number say 0/4 = 0, the quotient is always 0. So (iii) match with option (b).

(iv)
Smallest whole number is 0. Now if we add 2 three time to 0 we get, 0+2+2+2=6. So (iv) match with option (e).

(v)
Smallest odd prim number is 3. So (v) match with option (c).

Correct match is:
(i)-(d)
(ii)-(f)
(iii)-(b)
(iv)-(e)
(v)-(c)

152. Arrange the following numbers in descending order: 8435, 4835, 13584, 5348, 25843

Solution:
Descending order of numbers is when numbers are arranged from greatest to the smallest number.
Numbers arranged in descending order are as follows: 4835, 5348, 8435, 13584, 25843.

153. Of the following numbers which is the greatest? Which is the smallest? 38051425, 30040700, 67205602

Solution:
The greatest number out of given numbers is : 67205602 and the smallest number out of given numbers is: 30040700.

154. Write in expanded form:
(a) 74836 (b) 574021 (c) 8907010

Solution:
The expanded form of the given numbers is as follows:
(a)
74836 = 7×10,000 + 4×1,000 + 8×100 + 3×10 + 6×0

(b)
574021 = 5×10, 00, 00 + 7×10,100 + 4×1,000 + 0 + 2×10 + 1

(c)
8907010 = 8×1, 00, 00, 00 + 9×10, 00, 00 + 0 + 7×1,000 + 1×10 + 0

155. As per the census of 2001, the population of four states are given below. Arrange the states in ascending and descending order of their population.

(a) Maharashtra	**96878627**
(b) Andhra Pradesh	**76210007**
(c) Bihar	**82998509**
(d) Uttar Pradesh	**166197921**

Solution:
Ascending order is when numbers are arranged from smallest to greatest and descending order is when numbers are arranged from greatest to smallest.
States in ascending order are: Andhra Pradesh, Bihar, Maharashtra and Uttar Pradesh.
States in descending order are: Uttar Pradesh, Maharashtra, Bihar, Andhra Pradesh.

156. The diameter of Jupiter is 142800000 meters. Insert commas suitably and write the diameter according to International System of Numeration.

Solution:
According to International System of Numeration, commas are inserted after every three digits from the right side of the number.
So, the diameter of Jupiter according to International System of Numeration is 142,800,000 meters.

157. India's population has been steadily increasing from 439 million in 1961 to 1028 millions in 2001. Find the total increase in population from 1961 to 2001. Write the increase in population in Indian System of Numeration, using commas suitably.

Solution:
According to given data, Population of India in 1961 = 439 millions
Population of India in 2001 = 1028 millions
So Increase in population = 1028 millions − 439 millions
= 589 millions
= 5, 890, 000, 000

158. Radius of the Earth is 6400km and that of Mars is 4300000m. Whose radius is bigger and by how much?

Solution:

As given, Radius of Earth is 6400 km = 6400 × 1000 m (Since, 1km = 1000m)
Hence, radius of Earth = 6400000 m
Also it is given that, radius of Mars = 4300000 m
Difference in radius of Earth and Mars is: 6400000m – 4300000m = 2100000m
On comparing the radius of Earth and Mars, we can see clearly that radius of earth is bigger by 2100000m.

159. In 2001, the populations of Tripura and Meghalaya were 3,199,203 and 2,318,822, respectively. Write the populations of these two states in words.

Solution:

According to given information, population of Tripura in 2001 is 3,199,203. In words it can be written as: Three million one hundred ninety nine thousand two hundred three.
Similarly, population of Meghalaya in 2001 is 2,318,822. In words it can be written as: Two million three hundred eighteen thousand eight hundred twenty two.

160. In a city, polio drops were given to 2, 12,583 children on Sunday in March 2008 and to 2, 16,813 children in the next month. Find the difference of the number of children getting polio drops in the two months.

Solution:

According to given information,
No. of children got polio drops in 1st month = 2, 12,583
No. of children got polio drops in 2nd month = 2, 16,813
So, total children got polio drops are 2, 12,583 + 2, 16,813 = 4, 28,766 children.

161. A person had Rs 1000000 with him. He purchased a colour T.V. for Rs 16580, a motor cycle for Rs 45890 and a flat for Rs 870000. How much money was left with him?

Solution:

According to given information, cost of colour T.V. = Rs. 16580
Cost of motorcycle = Rs. 45890
Cost of flat = Rs. 870000
Now, sum of all purchases is 16580 + 45890 + 870000 = Rs.932470
Money left will be 10, 00,000 - 932470= 67530

162. Out of 180000 tablets of Vitamin A, 18734 are distributed among the students in a district. Find the number of the remaining vitamin tablets.

Solution:

According to given information, total Vitamin A tablets = 180000
Tablets which are distributed among the students in a district = 18734.
Remaining no. of tablets are 180000 – 18734 = 161266

163. Chinmay had Rs 610000. He gave Rs 87500 to Jyoti, Rs 126380 to Javed and Rs 350000 to John. How much money was left with him?

Solution:
According to given information,
Total money with Chinmay is Rs 610000
Money given to Jyoti is Rs. 87500
Money given to Javed is Rs. 126380 and
Money given to John is Rs. 350000.
Now, Total money given is 87500 + 126380 + 350000 = Rs 563880
So Money left is 610000 – 563880 = Rs 46120
Therefore, Rs 46120 was left with Chinmay.

164. Find the difference between the largest number of seven digits and the smallest number of eight digits.

Solution:
The largest 7-digit number is 9999999 and 10000000 is the smallest 8-digit number.
Now difference between them is 9999999 – 10000000 = -1.

165. A mobile number consists of ten digits. The first four digits of the number are 9, 9, 8 and 7. The last three digits are 3, 5 and 5. The remaining digits are distinct and make the mobile number, the greatest possible number. What are these digits?

Solution:
It is known that Mobile number consists of 10 Digits. According to given information, the first four digits of mobile are 9 9 8 7 and the last 3 digits of mobile are 3 5 5. Now, we need to make a largest mobile number from remaining numbers 6, 4, 2 and 0.
So, the Largest mobile number is 9 9 8 7 6 4 2 3 5 5.

166. A mobile number consists of ten digits. First four digits are 9, 9, 7 and 9. Make the smallest mobile number by using only one digit twice from 8, 3, 5, 6, and 0.

Solution:
It is known that Mobile number consists of 10 Digits. According to given information, the first four digits of mobile are 9 9 7 9. Now we need to make a smallest mobile number from 8, 3, 5, 6 and 0. So, we will take 0 twice. (Because 0 is the smallest number from the following).
So, the Smallest mobile number is 9979003568.

167. In a five digit number, digit at ten’s place is 4, digit at unit’s place is one fourth of ten’s place digit, digit at hundred’s place is 0, digit at

thousand’s place is 5 times of the digit at unit’s place and ten thousand’s place digit is double the digit at ten’s place. Write the number.

Solution:

According to given information, Digit at one's place = 1 ÷ 4 × 4 = 1
Digit at ten's place is 4
Digit at hundred's place is 0
Digit at thousand's place is 5 × 1=5
Digit at ten thousand's place is 2 × 4 = 8.
So, the final five digit number is 85,041

168. Find the sum of the greatest and the least six digit numbers formed by the digits 2, 0, 4, 7, 6, 5 using each digit only once.

Solution:

According to given information, the greatest six digit number formed by 2,0,4,7,6,5 is 765420 and the smallest six digit number formed by 2,0,4,7,6,5 is 204567.
Now, the sum of the greatest and the least six digit numbers is 765420 + 204567 = 969987

169. A factory has a container filled with 35874 litres of cold drink. In how many bottles of 200 ml capacity each can it be filled?

Solution:

According to given information**,**
Capacity of 1 bottle to be filled = 200 ml.
So calculating for 1 litre, Capacity of 5 bottles is 200 × 5 = 1000 ml = 1 L.
Now in 1 L number of bottles can be filled = 5
So in 35874 litres number of bottles that can be filled are 5 × 35874 = 179370.
Total no. of bottles than can be filled = 179370

170. The population of a town is 450772. In a survey, it was reported that one out of every 14 persons is illiterate. In all how many illiterate persons are there in the town?

Solution:

According to given information,
Population of a town = 450772 and One out of every 14 persons is illiterate.
So by using “Unitary method" we have:
For every 14 persons, number of illiterate people will be 1
And for every 1 person, number of illiterate people will be 1/14.
Now, for every 450772 persons, number of illiterate people will be = (1/14) × 450772 = 32198 respectively.
Hence, there are total 32198 illiterate persons in the town.

171. Find the LCM of 80, 96, 125, and 160.

Solution:
LCM is defined as the least common factor and so LCM of 80,96, 125 and 160 = 2 × 2 × 2 × 2 × 2 × 3 × 5 × 5 × 5 = 12000

172. Make the greatest and the smallest 5-digit numbers using different digits in which 5 appears at ten's place.

Solution:
According to given information, all the digits that are to be there shall be distinct with 5 at ten's place. So, using the digit 5 at ten's place, the greatest 5-digit number is 98756, and the smallest 5-digit number is 10253.

173. How many grams should be added to 2kg 300g to make it 5kg 68g?

Solution:
According to given information, we have 2kg 300g = 2300g
and 5 kg 68g = 5068 g
Now difference between the two will determine the amount that we shall add to 2kg 300g to make it 5kg 68g= (5068 - 2300)g = 2768g
Thus, 2768g should be added to 2kg 300 g to make 5kg 68 g

174. A box contains 50 packets of biscuits each weighing 120g. How many such boxes can be loaded in a van which cannot carry beyond 900kg?

Solution:
According to given information, Total no. of. Biscuit packets in a box = 50 and weight of each packet = 120 g.
Also, Total Weight that can carried by the van is 900kg = 900000 g.
So, no. of boxes of biscuits that van can carry is 900000÷ (50 × 120) = 150.
So, total no. of boxes that the van can carry = 150.

175. How many lakhs make five billions?

Solution:
1 billion = 10000 lakhs
So, 5 billion = 5 × 10000 lakhs = 50000 lakhs.

176. How many millions make 3 crores?

Solution:
1 crore = 10 million and so 3 crores = 3 × 10 million = 30 million.

177. Estimate each of the following by rounding off each number to nearest hundreds:

(a) 874 + 478 (b) 793 + 397 (c) 11244 + 3507 (d) 17677 + 13589

Solution:

According to given information, each of the following should be round off to the nearest hundreds:

(a) 874 + 478, by rounding off each number to nearest hundreds: 900 + 500 = 1400

(b) 793 + 397, by rounding off each number to nearest hundreds: 800 + 400 = 1200

(c) 11244 + 3507, by rounding off each number to nearest hundreds: 11200 + 3500 = 14700

(d) 17677 + 13589, by rounding off each number to nearest hundreds: 17700 + 13600 = 31300

178. Estimate each of the following by rounding off each number to nearest tens:

(a) 11963 – 9369 (b) 76877 – 7783 (c) 10732 – 4354 (d) 78203 – 16407

Solution:

According to given information, each of the following should be round off to the nearest tens and then solved:

(a) 11936 – 9369, by rounding off each number to nearest hundreds: 11940 – 9370 = 2590

(b) 76877 – 7783, by rounding off each number to nearest tens: 76880 – 7780 = 69100

(c) 10732 – 4354, by rounding off each number to nearest tens: 10730 – 4350 = 6380

(d) 78203 – 16407, by rounding off each number to nearest tens: 78200 – 16410 = 61790

179. Estimate each of the following products by rounding off each number to nearest tens: (a) 87 × 32 (b) 311×113 (c) 3239 × 28 (d) 1385 × 789

Solution:

According to given information, each of the following should be round off to the nearest tens and then solved:

(a) 87 × 32, by rounding off each number to nearest tens: 90 × 30 = 2700

(b) 311 × 113, by rounding off each number to nearest tens: 310 × 110 = 34100

(c) 3239 × 28, by rounding off each number to nearest tens: 3240 × 30 = 97200

(d) 1385 × 789, by rounding off each number to nearest tens: 1390 × 790 = 1098100

180. The population of a town was 78787 in the year 1991 and 95833 in the year 2001. Estimate the increase in population by rounding off each population to nearest hundreds.

Solution:
According to given information,
Population of the town in the year 1991 = 78787 and
Population of the town in the year 2001 = 95833
The increase in population can be calculated by subtracting the both,
Thus, increase in the population is 78787 - 95833 = 17046
Now, Rounding off the increase population to nearest to hundred = 17000.

181. Estimate the product 758 × 6784 using the general rule.

Solution:
As given in question, according to general rule , we can round off the values to its nearer value in such a way that making the ten's place as 0.
So, by rounding off 758 to nearer value we get 800 and similarly by rounding off 6784 to nearer value we get 7000
Thus, the resultant product will be = 800 × 7000 = 5600000

182. A garment factory produced 216315 shirts, 182736 trousers and 58704 jackets in a year. What is the total production of all the three items in that year?

Solution:
According to given information,
Shirts produced by the company = 216315
Trousers produced by the company = 182736
Jackets produced per year = 5870
So, total production of all the three items 216315 + 182736 +58704 = 457755

183. Find the LCM of 160, 170 and 90.

Solution:
LCM by definition is defined as least common factor and so LCM of 160, 170, and 90 is 2×5×16×17×9 = 24480

184. A vessel has 13litres 200mL of fruit juice. In how many glasses each of capacity 60mL can it be filled?

Solution:
According to given information,
Total capacity of juice in vessel is 13 litre 200 ml = 13000 + 200 = 13200 ml.
Also, Capacity of one glass = 60 ml.

Now total no. of glasses that can be filled is 13200 ÷ 60 = 220 glasses.

185. Determine the sum of the four numbers as given below:
(a) successor of 32
(b) Predecessor of 49
(c) Predecessor of the predecessor of 56
(d) Successor of the successor of 67

Solution:
(a) Successor of 32 = 33
(b) Predecessor of 49 = 48
(c) Predecessor of the predecessor of 56 = 54
(d) Successor of the successor of 67 = 69

Now, sum of four numbers is 33 + 48 + 54 + 69 = 204

186. A loading tempo can carry 482 boxes of biscuits weighing 15kg each, whereas a van can carry 518 boxes each of the same weight. Find the total weight that can be carried by both the vehicles.

Solution:
According to given information,
A tempo can carry 482 boxes of biscuits each of 15 kg
So total weight carried by the tempo is 482 × 15= 7230 kg
Also, given that van can carry 518 boxes of biscuits each of 15 kg
So total weight carried by the Van is 518 × 15 =7770 kg
Hence, total weight that can be carried by both the vehicles is 7230 +7770 =15,000 kg.

187. In the marriage of her daughter, Leela spent Rs 216766 on food and decoration, Rs 122322 on jewellery, Rs 88234 on furniture and Rs 26780 on kitchen items. Find the total amount spent by her on the above items.

Solution:
According to the given question,
Money spent on food and decoration = Rs 216766
Money spent on jewellery = Rs 122322
Money spent on furniture = Rs 88234
Money spent on Kitchen items = Rs 26780
Now, total amount spent = 216766 + 122322 + 88234 + 26780 = Rs 454102

188. A box contains 5 strips having 12 capsules of 500mg medicine in each capsule. Find the total weight in grams of medicine in 32 such boxes.

Solution:
According to given question, weight of each capsule = 500 mg

So weight of 12 capsules is 500 × 12 = 6000 mg
This implies weight of one box having 5 strips will be 6000 × 5 = 30000 mg
Thus, total weight in grams of medicine in 32 such boxes will be 32 × 30000 = 96000 mg or 96000÷1000 = 960 g.

189. Determine the least number which when divided by 3, 4 and 5 leaves remainder 2 in each case.

Solution:
Least number which is divisible by all 3, 4 and 5 is basically their LCM that is, 3 × 4 × 5 = 60.
Here, we need to find the least number which leaves remainder 2 when divided by 3, 4, 5.
So, required no. will be: 60 + 2 = 62

190. A merchant has 120 litre of oil of one kind, 180 litre of another kind and 240 litre of a third kind. He wants to sell the oil by filling the three kinds of oil in tins of equal capacity. What should be the greatest capacity of such a tin?

Solution:
According to given information, there are three kinds of oil in which merchant possess 120 litre of one kind, 180 litre of another kind and 240 litre of third kind.
In order to determine the greatest capacity of a tin which could carry all the kinds of oils in same capacity, we need to calculate the HCF of 120, 180, and 240.
HCF of 120, 180 and 240 is 60.
This implies that greatest capacity of each tin shall be 60 litre.

191. Find a 4-digit odd number using each of the digits 1, 2, 4 and 5 only once such that when the first and the last digits are interchanged, it is divisible by 4.

Solution:
The possible 4-digit number using each of the digits 1, 2, 4 and 5 only once such that when the first and the last digits are interchanged, it is divisible by 4 is 4521.
When the first and the last digits are interchanged, it will become 1524 which is divisible by 4.

192. Using each of the digits 1, 2, 3 and 4 only once, determine the smallest 4-digit number divisible by 4.

Solution:
According to given information, 1, 2, 3, and 4 should only be used once for forming the smallest 4-digit number divisible by 4.
Here, total four digit numbers formed by 1, 2, 3 and 4 which are divisible by 4 are: 1432, 4132, 3124, 1324, 3412, 4312, 1324, and 3124 respectively.

And the smallest 4-digit number divisible by 4 among them is 1324.

193. Fatima wants to mail three parcels to three village schools. She finds that the postal charges are Rs 20, Rs 28 and Rs 36, respectively. If she wants to buy stamps only of one denomination, what is the greatest denomination of stamps she must buy to mail the three parcels?

Solution:

According to given information, postal charges are Rs 20, Rs 28, and Rs 36.
In order to determine the greatest denomination of stamps she must buy to mail the three parcels we need to calculate the HCF of given charges.
HCF of 28 and 20 is 4 and HCF of 4 and 36 is 4.
This implies greatest denomination should be 4.

194. Three brands A, B and C of biscuits are available in packets of 12, 15 and 21 biscuits respectively. If a shopkeeper wants to buy an equal number of biscuits, of each brand, what is the minimum number of packets of each brand, he should buy?

Solution:

According to given information,
Number of biscuits in brand A = 12
Number of biscuits in Brand B = 15
Number of biscuits in Brand C = 21
In order to have the equal no. of biscuits of each brand, minimum number of packets of each brand can be calculated by taking the LCM of 12, 15 and 21.
LCM of 12, 15, 21 is 420.
Thus, minimum number of packets of each brand that the shopkeeper shall buy is 420.

195. The floor of a room is 8m 96cm long and 6m 72cm broad. Find the minimum number of square tiles of the same size needed to cover the entire floor.

Solution:

According to given question,
Size of floor of room is:
8m 96cm = 8 × 100 + 96
= 896cm

6m 72cm = 6 × 100 + 72
= 672 cm

Now in order to determine the minimum number of square tiles to cover the floor, we have to find the greatest size of each such tile and it will be determined by calculating the H.C.F. of 896 cm and 672 cm respectively.
H.C.F. of 896 and 672 is 2 × 2 × 2 × 2 × 2 × 7 = 224.

Hence, the required size of the square tile must be 224 × 224 cm.
This implies that minimum no. of square tiles of same size needed to cover the floor is given by
Area of the floor/Area of one square tile = (896 × 672) ÷ (224 × 224)
= 602112 ÷ 50176
= 12
Thus, 12 square tiles each of 224cm × 224cm will be needed to cover the entire floor.

196. In a school library, there are 780 books of English and 364 books of Science. Ms. Yakang, the librarian of the school wants to store these books in shelves such that each shelf should have the same number of books of each subject. What should be the minimum number of books in each shelf?

Solution:

According to given information, number of English books in the Library = 780 and number of science books = 36
Here, the HCF of 780 and 364 is 52
Now, minimum no, of books that librarian shall store in each shelf is,
No. Of English books in each shelf: 780 ÷ 52 = 15
No.of science books in each shelf: 364 ÷ 52 = 7

197. In a colony of 100 blocks of flats numbering 1 to 100, a school van stops at every sixth block while a school bus stops at every tenth block. On which stops will both of them stop if they start from the entrance of the colony?

Solution:

According to given information,
Number blocks in a colony is 100, numbering from 1 to 100.
If a school van stops at every sixth block a school bus stops at every tenth block then,
The flat numbers at which van stops = 6 , 12 ,18 , 24 , 30 , 36 , 42 , 48 , 54 , 60 , 66 ,72 , 78 , 84 , 90 and 96.
And, the flat numbers at which bus stops = 10 , 20 ,30 , 40 , 50 ,60 ,70 , 80 ,90 and 100.
It can be clearly seen that common flat numbers = 30, 60, 90
So, 30, 60 and 90 flat numbers which are common bus stops for bus and van respectively.

198. Test the divisibility of following numbers by 11
(a) 5335 (b) 9020814

Solution:

According to divisibility test of 11, the difference between the sum of digits at odd places and sum of digits at even places from the right side should b divisible by 11. Here we have:

(a) 5335, (sum of digits at odd places) – (sum of digits at even places) = (5+3) – (3+5) = 8-8 = 0 and it is divisible by 11. So 5335 is divisible by 11.

(b) 9020814, (sum of digits at odd places) – (sum of digits at even places) = (4+8+2+9) – (1+0+0) = 23 - 1 = 22 and it is divisible by 11. So 9020814 is divisible by 11.

199. Using divisibility tests, determine which of the following numbers are divisible by 4?
(a) 4096 (b) 21084 (c) 31795012

Solution:
According to divisibility test of 4, the last two digits of the number should be divisible by 4. Here we have:

(a) 4096, last two digits of 4096 is 96 and it is divisible by 4. So 4096 is divisible by 4.

(b) 21084, last two digits of 21084 is 84 and it is divisible by 4. So 21084 is divisible by 4.

(c) 31795012, last two digits of 31795012 is 12 and it is divisible by 4. So 31795012 is divisible by 4.

200. Using divisibility test. Determine which of the following numbers are divisible by 9?
(a) 672 (b) 5652

Solution:
According to divisibility test of 9, sum of all the digits of the given number should be divisible by 9. Here we have:

(a) 672, Sum of all digits of 672 (6+7+2) is 15 and 15 is not divisible by 9. So 672 is not divisible by 9.

(b) 5652, Sum of all digits of 5652 (5+6+5+2) is 18 and 18 is divisible by 9. So 5652 is divisible by 9.