Unit 1 (Number System)

Multiple Choice Questions (MGQs)

Question 1:

The product of the place values of two 2's in 428721 is

(a) 4 (b) 40000 (c) 400000 (d) 40000000

Solution :

(c) The given number is 428721.

According to the question,

The place value of first 2 = 2 x 10 = 20 [it is at ten's place]

and the place value of second 2 = 2 x 10000 = 20000 [it is at ten thousand's place]

Their product = 20 x 20000 = 400000

Hence, the product of the place values of two 2's in 428721 is 400000.

Question 2:

3 x 10000 + 7 x 1000 + 9 x 100 + 0 x 10 + 4 is the same as

(a) 3794 (b) 37940 (c) 37904 (d) 379409

Solution:

(c) We have,

3 x 10000 + 7 x 1000 + 9 x 100 + 0 x 10 + 4 [by simplification]

= 30000 + 7000 + 900 + 0 + 4 = 37904

Question 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:

(d) Greatest 7-digit number = 9999999

On adding 1 to greatest 7-digit number, we get 9999999+ 1 = 10000000 , = 1 crore

Question 4:

The expanded form of the number 9578 is

(a) 9 x 10000 + 5 x 1000 + 7 x 10 + 8 x 1

(b) 9 x 1000 + 5 x 100 + 7 x 10 + 8 x 1

(c) 9 x 1000 + 57 x 10 + 8 x 1

(d) 9 x 100 + 5 x 100+ 7 x 10 + 8 x 1

Solution:

(b) Given number is 9578.
On expanding 9578, we get 9578 = 9 x 1000 + 5 x 100 + 7 x 10 + 8 x 1
[writing each digit as its place value]

Question 5:
5 When rounded off to nearest thousands, the number 85642 is
(a) 85600 (b) 85700
(c) 85000 (d) 86000
Solution:
(d) 85642 rounded off to nearest thousands = 86000

Question 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:
(d) Given digits are 5,9, 2 and 6.
Descending order of the given digits is 9, 6, 5, 2.
Since, we can use any one digit twice, so the required largest 4-digit number is 9965.

Question 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:
(c) According to the Indian system of numeration, the number 58695376 will be written as 5, 86, 95, 376
Note In Indian system of numeration, we use different periods like ones, thousands, lakhs, crores, etc., to read the large number easily. A comma (,) is used to differentiate the periods. There are two places in each period except 'units'.

Question 8:
One million is equal to
(a) 1 lakh (b) 10 lakh (c) 1 crore (d) 10 crore
Solution:
(b) We know that, 1 million = 1000000 = 10 lakh

Question 9:
The greatest number which on rounding off to nearest thousands gives 5000, is
(a) 5001 (b) 5559 (c) 5999 (d) 5499
Solution:
(d) On rounding off the given numbers to nearest thousands, we get
5001 —> 5000 5559 —> 6000 5999 —> 6000 5499 —> 5000
Out of 5001 and 5499, the greatest number is 5499, which gives 5000 on rounding off to nearest thousands.

Question 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:
(c) Given number is 6350947.
The digits in the given number 6350947 are 6, 3, 5, 0, 9, 4 and 7. Keeping the digit 6 at ten lakh's place, the rest of the digits fill other places like lakh, ten thousands, thousand,

hundreds, tens and ones place by decreasing order of remaining number, i.e. 0, 3, 4, 5, 7, 9.
Hence, the required smallest number is 6034579.

Question 11:
Which of the following numbers in roman numerals is incorrect?
(a) LXXX (b) LXX (c) LX (d) LLX
Solution:
(d) We know that, the symbols V, L and D can never be repeated. So, LLX is incorrect.

Question 12:
The largest 5-digit number having three different digits is
(a) 98978 (b) 99897 (c) 99987 (d) 98799
Solution:
(c) For greatest number, we write the digits in descending order.
So, the greatest 5-digit number having three different digits is 99987.

Question 13:
The smallest 4-digit number having three different digits is
(a) 1102 (b) 1012 (c) 1020 (d) 1002
Solution:
(d) For smallest number, we write the digits in ascending order.
So, the smallest 4-digit number having three different digits is 1002.

Question 14:
Number of whole numbers between 38 and 68 is
(a) 31 (b) 30 (c) 29 (d) 28
Solution:
(c) Whole numbers between 38 and 68 are 39, 40, 41,42, 43, 44, 45, 46, 47, 48, 49, 50, 51,52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66 and 67.
Total whole numbers between 38 and 68 = 29
Alternate Method
Let a = 38 and b = 68
Then, number of whole numbers between a and b
= b- a-1 [when b > a]
Number of whole numbers between 38 and 68 = 68-38-1 = 29

Question 15:
The product of successor and predecessor of 999 is
(a) 999000 (b) 998000 (c) 989000 (d) 1998
Solution:
(b) We know that, the successor of a whole number is the number obtained by adding 1 to it and the predecessor of a whole number is one less than the given number.
So, the successor of 999 = 999+ 1 = 1000
and the predecessor of 999 = 999 -1 = 998
Product of successor and predecessor of 999 = 1000 x 998
= 998000

Question 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:

(a) Since, the product of a non-zero whole number and its successor is always an even number, e.g.

6 x 7 = 42 13 x 14 = 182

Question 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:

(c) Let x be any whole number.

According to the question,

(x + 25) + (25 – x) = x + 25 + 25 – x = 50

Question 18:

Which of the following is not true?

(a) (7 + 8) + 9 = 7 + (8 + 9) (b) (7 x 8) x 9 = 7 x (8 x 9)

(c) 7 + 8 x 9 = (7 + 8) x (7 + 9) (d) 7 x (8 + 9) = (7 x 8) + (7 x 9)

Solution:

(c) (a) We have, (7+8)+9 = 7+ (8+9)

LHS = (7 + 8)+ 9 = 15+9 =24

RHS = 7 + (8+ 9)

= 7+17=24 . LHS = RHS So, it is true.

(b) We have, (7 x 8) x 9 = 7 x (8 x 9)

LHS = (7 x 8) x 9= 56 x 9= 504 RHS = 7 x (8 x 9)= 7 x 72 =504 .LHS = RHS So, it is true.

(c) We have, 7+ 8 x 9 = (7+8) x (7 + 9)

LHS = 7 +8 x 9 = 7 + 72 = 79

RHS = (7 + 8) x (7 + 9)=15 x 16 = 240

∴79 ≠ 240

∴ LHS ≠ RHS So, it is false.

(d) We have, 7 x (8 + 9) = (7 x 8) + (7 x 9)

LHS = 7 x (8+9)=7 x 17 = 119 RHS = (7 x 8)+(7 x 9)= 56+ 63=119

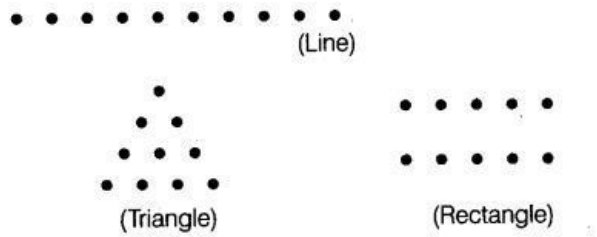
∴ LHS = RHS So, it is true.

Question 19:

By using dot (.) patterns, which of the following numbers can be arranged in all the three ways, namely a line, a triangle and rectangle? (a) 9 (b) 10 (c) 11 (d) 12

Solution:

(b) By using 10 dots, we can make a line, a triangle and a rectangle.



Question 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:

(b) We know that, zero is not the identity for multiplication of whole numbers, i.e. a x 0 = 0, where a is any whole number.

Question 21:

Which of the following statements is not true?

(a) 0 + 0 = 0 (b)0 -0 = 0 (c)0 x 0 = 0 (d)0-0=0

Solution:

(d) Since, division of zero-by-zero is not defined.

Note If we divide any number by 0, then it is not defined (infinite).

Question 22:

The predecessor of 1 lakh is

(a) 99000 (b) 99999 (c) 999999 (d) 100001

Solution:

(b) To get predecessor of a number, we subtract 1 from the given number.

So, the predecessor of 1 lakh = 100000 -1

= 99999

Question 23:

The successor of 1 million is

(a) 2 m i 11 ion (b) 1000001 (c) 100001 (d) 10001

Solution:

(b) To get successor of a number, we add 1 to the given number.

So, the successor of 1 million = 1000000 + 1

= 1000001

Question 24:

Number of even numbers between 58 and 80 is

(a) 10 (b) 11 (c) 12 (d) 13

Solution:

(a) Since, even numbers between 58 and 80 are 60,62, 64, 66,68, 70, 72, 74, 76 and 78.

Total even numbers between 58 and 80 = 10

Question 25:

Sum of the numbers of primes between 16 to 80 and 90 to 100 is

(a) 20 (b) 18 (c) 17 (d) 16

Solution:

(c) Since, prime numbers between 16 to 80 are 17,19, 23, 29, 31, 37, 41,43, 47, 53, 59, 61,67, 71,73 and 79.

Total prime numbers between 16 to 80 = 16

and prime numbers between 90 to 100 = 97

Total number of prime numbers between 90 to 100 = 1

Sum of the numbers of primes between 16 to 80 and 90 to 100 = 16+1 = 17

Question 26:

Which of the following statements is not true?

(a) The HCF of two distinct prime numbers is 1

(b) The HCF of two coprime numbers is 1

(c) The HCF of two consecutive even number is 2

(d) The HCF of an even and an odd numbers is even

Solution:

(d) We know that, HCF of an even and an odd number is always an odd number, e.g. HCF (8, 7) = 1 (odd)

Question 27:

The number of distinct prime factors of the largest 4-digit number is

(a) 2 (b) 3 (c) 5 (d) 11

Solution:

(b) We know that, largest 4-digit number = 9999 Prime factors of 9999

3	9999
3	3333
11	1111
101	101
	1

i.e. 9999 = 3^2 x 11 x 101

Hence, the number of distinct prime factors of the largest 4-digit number is 3.

Question 28:

The number of distinct prime factors of the smallest 5-digit number is

(a) 2 (b) 4 (c) 6 (d) 8

Solution:

(a) We know that, smallest 5-digit number = 10000 Prime factors of 10000

2	10000
2	5000
2	2500
2	1250
5	625
5	125
5	25
5	5
	1

i.e. 10000 = 2^4 x 5^4.

Hence, the number of distinct prime factors of the smallest 5-digit number is 2.

Question 29:

If the number 7254 * 98 is divisible by 22, then the digit at * is

(a) 1 (b) 2 (c) 6 (d) 0

Solution:

(c) We know that, if a number is divisible by two coprime numbers, then it is divisible by their product also.

If 7254 * 98 is divisible by 22, then it must be divisible by 2 and 11 both. Since, the last digit is 8, so it is divisible by 2. Now, for divisibility by 11, the difference of sum of digits on even and odd places must be either zero or divisible by 11.

Sum of digits at even places = 9+ 4+2 = 15 Sum of digits at odd places = 8+ * + 5+ 7 = 20+ *

Required difference = (20 + *) -15 = 5 + *

For divisibility by 11, 5 + * =11

* = 6

Hence, the digit at * is 6.

Question 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:

(b) The smallest pair of consecutive odd numbers is 1 and 3.
Their sum = 1+3=4, which is divisible by 4.

Question 31:

A number is divisible by 5 and 6. It may not be divisible by
(a) 10 (b) 15
(c) 30 (d) 60

Solution:

(d) Any number divisible by 5 and 6 will be either 30 or multiple of 30, but 30 is not divisible by 60.

Question 32:

The sum of the prime factors of 1729 is
(a) 13 (b) 19
(c) 32 (d) 39

Solution:

(d) We have, 1729
Prime factors of 1729

7	1729
13	247
19	19
	1

Thus, the prime factors of 1729 = 7 x 13 x 19
Sum of the prime factors of 1729 = 7 + 13+19 = 39

Question 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:

(b) Let an odd natural number other than 1 be 3.
Then, predecessor of 3 = 3-1 = 2 and successor of 3 = 3 +1 = 4
∴ Their product = 2 x 4 = 8
LCM of predecessor and successor i.e.

2	2, 4
2	1, 2
	1, 1

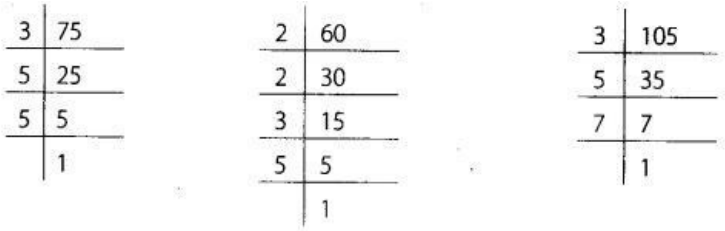
= 2 x 2= 4
Hence, the greatest number which always divides the product of predecessor and successor of an odd natural number other than 1, is 4.

Question 34:

The number of common prime factors of 75, 60 and 105 is
(a) 2 (b) 3 (c) 4 (d) 5

Solution:

(a) Prime factorization of 75, 60 and 105



3	75
5	25
5	5
	1

2	60
2	30
3	15
5	5
	1

3	105
5	35
7	7
	1

75 = 3 x 5 x 5 60= 3 x 5 x 2 x 2

105 = 3 x 5 x 1 x 7

Common factors of 75, 60 and 105 are 3 and 5.

Hence, the number of common prime factors of 75, 60 and 105 is 2.

Question 35:

Which of the following pairs is not coprime?

(a) 8, 10 (b) 11, 12 (c) 1, 3 (d) 31, 33

Solution:

(a) We know that, if HCF of a pair of numbers is 1, then they are called coprimes.

So, 8 and 10 are not coprimes.

Question 36:

Which of the following numbers is divisible by 11?

(a) 1011011 (b) 1111111 (c) 22222222 (d) 3333333

Solution:

(e) A number is divisible by 11, if the difference of the sum of the digits on even places and odd places is either 0 or divisible by 11.

From option (a), we get

Sum of the. digits at even places = 1 +1 + 0 = 2 Sum of the digits at odd places = 1 + 0 +1 +1 = 3 Difference = 3-2 = 1

It is not divisible by 11.

From option (b), we get

Sum of the digits at even places = 1 +1 +1 = 3 Sum of the digits at odd places = 1 +1 +1 +1 = 4 Difference = 4-3 = 1

It is not divisible by 11.

From option (c), we get

Sum of the digits at even places = 2 + 2 + 2 + 2 = 8 Sum of the digits at odd places = 2 + 2 + 2 + 2= 8 Difference =8-8 = 0

It is divisible by 11.

From option (d), we get

Sum of the digits at even places = 3+3+3=9 Sum of the digits at odd places = 3+ 3+ 3+ 3=12 Difference = 12 -9=3

It is not divisible by 11.

Hence, 22222222 is divisible by 11.

Question 37:

LCM of 10,15 and 20 is

(a) 30 (b) 60 (c) 90 (d) 180

Solution:

(b) Prime factorization of 10,15 and 20

2	10, 15, 20
2	5, 15, 10
3	5, 15, 5
5	5, 5, 5
	1, 1, 1

LCM of 10,15 and 20 = 22 x 3 x 5 = 60

Question 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:

(c) LCM must be divisible by HCF. Now, 180 is not divisible by 75. e.g. Let the two numbers be 4 and 8.

Then, HCF of 4 and 8 = 4 and LCM of 4 and 8 = 8

∴LCM +HCF = 8+4 = 2

True/False

In questions 39 to 98, state whether the given statements are True or False.

Question 39:

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

Solution: True

Since, it is a general rule.

Question 40:

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

Solution: False

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

Question 41:

5555 = 5 x 1000 + 5 x 100 + 5 x 10 + 5 x 1

Solution: True

Since, 5 x 1000+ 5 x 100+ 5 x 10 + 5 x 1

= 5000 + 500+ 50+5 = 5555

Question 42:

39746 = 3 x 10000 + 9 x 1000 + 7 x 100 + 4 x 10 + 6

Solution: True

Since, 3 x 10000+ 9 x 1000+ 7 x 100+4 x 10+6 x 1

= 30000 + 9000 +700+ 40+6 = 39746

Question 43:

82546 = 8 x 1000 + 2 x 1000 + 5 x 100 + 4 x 10 + 6

Solution: False

Since, 8 x 1000 + 2 x 1000 + 5 x 100 + 4 x 10 + 6 x 1

= 8000 + 2000 + 500 + 40 + 6 = 10546 ≠ 82546

Question 44:

532235 = 5 x 100000 + 3 x 10000 + 2 x 1000 + 2 x 100 + 3 x 10 + 5

Solution: True

Since, 5 x 100000 + 3 x 10000 + 2 x 1000 + 2 x 100 + 3 x 10 + 5 x 1 = 500000 + 30000 + 2000 + 200 + 30 + 5 = 532235

Question 45:

XXIX = 31

Solution: False

Since, XXIX =10+ 10+ 9 = 29≠31

Question 46:

LXXIV = 74

Solution: True

Since, LXXIV = 50+ 10+ 10+ 4=74

Question 47:

The number LIV is greater than LVI.

Solution: False

Since, LIV =50+ 4=54

LVI = 50 + 5 + 1 = 56

∴LVI > LIV

Question 48:

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

Solution: False

Since, in descending order, we arrange the given numbers from largest to smallest,

5487 > 5478 > 4587 > 4578

Question 49:

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

Solution: False

Since, rounded off 85764 to nearest hundreds = 85800

Question 50:

Estimated sum of 7826 and 12469 rounded off to hundreds is 20000.

Solution: True

Since, rounded off 7826 to nearest hundreds = 7800

and rounded off 12469 to nearest hundreds = 12500

So, estimated sum = 7800 + 12500 = 20300

Here, 20300 is nearest to 20000. So, the given statement is true.

Question 51:

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

Solution: False

Since, for making largest six-digit number, we arrange the given digits in descending order, we get i.e. 8, 7, 5, 4, 3 and 0.

Largest six-digit number = 875430

Question 52:

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

Solution: False
Since, the number 81652318 will be read as eight crore sixteen lakh fifty two thousand three hundred eighteen.

Question 53:
The largest 4-digit number formed by the digits 6, 7, 0, 9 using each digit only once, is 9760.
Solution: True
Since, for making the largest number, we arrange the given digits in descending order.
Descending order of the given digits is 9, 7, 6 and 0.

Question 54:
Among kilo, milli and centi, the smallest is centi.
Solution: False
Since, among kilo, milli and centi, the smallest is milli.

Question 55:
Successor of a one-digit number is always a one-digit number.
Solution: False
Since, successor of a one-digit number may be a two-digit number.
e.g. Let one-digit number be 9. Then, successor of 9 = 9+1 = 10, which is a two-digit number.

Question 56:
Successor of a 3-digit number is always a 3-digit number.
Solution: False
Since, successor of a 3-digit number cannot be always a 3-digit number, e.g. Successor of 999 = 999+1 = 1000

Question 57:
Predecessor of a two-digit number is always a two-digit number.
Solution: False
Since, predecessor of a two-digit number cannot be always a two digit number, e.g. Let a two-digit number be 10.
Then, predecessor of 10 = 10-1 = 9

Question 58:
Every whole number has its successor.
Solution: True
It is a standard result.

Question 59:
Every whole number has its predecessor.
Solution: False
Since, every whole number does not have a predecessor, e.g. 0 does not have a predecessor.

Question 60:
Between any two natural numbers, there is one natural number.
Solution: False
Between any two natural numbers a and b, there are (b – a -1) natural numbers, where b > a.

Question 61:

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

Solution: True

Since, the largest 3-digit number = 999

Successor of 999 = 999 +1 = 1000 [smallest 4-digit number]

Question 62:

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

Solution: True

It is a standard rule.

Question 63:

Natural numbers are closed under addition.

Solution: True

Since, the sum of any two natural numbers is always a natural number.

Question 64:

Natural numbers are not closed under multiplication.

Solution: False

Since, the product of any two natural numbers is always a natural number.

Question 65:

Natural numbers are closed under subtraction.

Solution: False

Since, the difference of any two natural numbers is not always a natural number.

Question 66:

Addition is commutative for natural numbers.

Solution: True

If a and b are two natural numbers, then

a + b = b + a

Question 67:

1 is identity for addition of whole numbers.

Solution: False

Since, 1 is the identity for multiplication of whole numbers.

Question 68:

1 is the identity for multiplication of whole numbers.

Solution: True

If a is any whole number, then

a x 1 = a

Question 69:

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

Solution: True

Since, if zero is added to any whole number, then the sum is the number itself.

Question 70:

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

Solution: False

There is no such natural number which when added to a natural number, gives the natural

number itself.

Question 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

It is a standard result.

Question 72:

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

Solution: True

If a is any whole number, then

a +a = 1

Question 73:

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

Solution: False

Whole numbers are closed under multiplication.

Question 74:

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

Solution: True

It is a standard result.

Question 75:

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

Solution: True

It is a standard result.

Question 76:

The number of multiples of a given number is finite.

Solution: False

There are infinite number of multiples of any given number.

Question 77:

Every number is a multiple of itself.

Solution: True

If we multiply any number by 1, then the-product is number itself. Therefore, every number is a multiple of itself.

Question 78:

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

Solution: True

It is a standard result.

Question 79:

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

Solution: True

It is a standard result.

Question 80:

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

Solution: False

If a number divides three numbers exactly, it must divide their sum exactly, but vice-versa is not true.

Question 81:

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

Solution: False

e.g. Suppose we take a number 6, which is divisible by 2 and 3, but it is not divisible by 12.

Question 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

According to the divisibility test for 6, if a number is divisible by 2 and 3 both, then it is divisible by 6.

Question 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

According to the divisibility test for 8, 4 or more digit number is divisible by 8, if the number formed by the last three digits is divisible by 8.

Question 84:

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

Solution: False

According to the divisibility test of 9, a number is divisible by 9, if the sum of the digits of a number is divisible by 9.

Question 85:

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

Solution: True

Since, 4 is divisible by 4, but it is not divisible by 8.

Question 86:

The highest common factor of two or more numbers is greater than their lowest common multiple.

Solution: False

Since, HCF of two or more numbers is less than their lowest common multiple.

Question 87:

LCM of two or more numebrs is divisible by their HCF.

Solution: True

It is a general rule.

Question 88:

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

Solution: False

Since, LCM (28) is not divisible by HCF (8).

Question 89:

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

Solution: True

If all the numbers are multiples of same number, then the greatest number among them is their LCM.

Question 90:

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

Solution: True

If all the numbers are multiples of same number, then the smallest number among them is their HCF.

Question 91:

Every whole number is the successor of another whole number.

Solution: False

Since, 0 (whole number) is not the successor of any whole number.

Question 92:

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

Solution: False

Let us understand this through example.

1 + 2 = 3 and 1×2=2 Here, sum (3)> product (2)

We can say that sum of two whole numbers is not always less than their product.

Question 93:

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

Solution: True

It is a general rule.

Question 94:

Any two consecutive numbers are coprime.

Solution: True

By definition, coprime numbers are those numbers, whose HCF is 1.

Question 95:

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

Solution: True

Since, HCF x LCM = First number x Second number

Question 96:

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

Solution: False

Since, HCF of two numbers is either equal to or greater than the smaller of the numbers.

Question 97:

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

Solution: False

Since, LCM of two numbers may be equal to or greater than the larger of the numbers.

Question 98:

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

Solution: True

Consider a pair of coprime numbers 3 and 4.

HCF of 3 and 4 = 1

LCM x HCF = Product of the two numbers Now, LCM x HCF = 3×4 => LCM x 1 = 3 x 4 => LCM = 12

Fill in the Blanks

In questions 99 to 150, fill in the blanks to make the statements true.

Question 99:

(a) 10 million = ……. crore

(b) 10 lakh = …….. million

Solution:

(a) We know that, 1 crore = 100 lakh and 1 million = 10 lakh

1 crore = 10 million

(b) We know that, 1 million = 10 lakh

Question 100:

(a) 1 metre = …….. millimetres

(b) 1 centimetre = ……. millimetres

(c) 1 kilometre = ……. millimetres

Solution:

(a) We know that, 10 mm = 1 cm and 100 cm = 1 m

1m = 1000 mm

(b) 1 cm = 10 mm

(c) We know that, 10 mm = 1 cm

100cm = 1m

and 1000 m = 1km

1 km = 1000x100x10=1000000mm

Question 101:

(a) 1 gram = ……. milligrams

(b) 1 litre = ……. millilitres

(c) 1 kilogram = …….. milligrams

Solution:

(a)1g = 1000mg

(b) 1 L = 1000 mL

(c) We know that, 1000 mg = 1 g

and 1000 g = 1 kg

1 kg = (1000 x 1000) mg = 1000000 mg

Question 102:

100 thousands = ……lakh

Solution:

We know that, 1 lakh = 100000 = 100 x 1000 = 100 thousands

Question 103:

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

Solution:

We know that, 1 m = 100 cm and 1cm = 10 mm

1m = 1000mm

and 65 cm = 65 x 10mm = 650mm

So, 1 m 65 cm = 1000 mm + 650 mm = 1650 mm

Question 104:

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

Solution:

We know that,

1 km = 1000 m

∴1290 km = 1290×1000

= 1290000 m

Question 105:

The distance between Srinagar and Leh is 422 km. The same distance in metres is …….

Solution:

We know that

1 km = 1000 m

422 km = 422×1000

= 422000 m

Question 106:

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

Solution:

Descending

In descending order, we arrange the given numbers from greatest to the smallest.

Question 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:

Smallest

For making smallest number from given ……. digits, we arrange them in ascending order and for

greatest number, we arrange them in descending order.

Question 108:

By adding 1 to the greatest ……. digit number, we get ten lakh.

Solution:

We know that, predecessor is one less than the given number.

1000000-1 = 999999

So, 999999 is the greatest 6-digit number.

Question 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:

5,23,78,401

Question 110:

In Roman numeration, the symbol X can be subtracted from ……., M and C only.

Solution:

L

By general rule, in Roman numeration, the symbol X can be subtracted from L, M and C only.

Question 110:

The number 66 in Roman numerals is …….

Solution:

LXVI

In Roman numeration,

66 = 60 + 6 = 50+10 + 5+1 = LXVI

Question 112:

The population of Pune was 2538473 in 2001. Rounded off to nearest thousands, the population was ……..

Solution:

2538000

Rounded off 2538473 to nearest thousands = 2538000

Question 113:

The smallest whole number is ……

Solution:

o

We know that, whole numbers start from 0. Therefore, the smallest whole number is 0.

Question 114:

Successor of 106159 is …….

Solution:

106160

For getting successor of the given number, we add 1 to the given number.

So, successor of 106159 = 106159 + 1 = 106160

Question 115:

Predecessor of 100000 is …….

Solution:

99999

For getting predecessor of the given number, we subtract 1 from the given number.

So, predecessor of 100000 = 100000 -1 = 99999

Question 116:

400 is the predecessor of …….

Solution: 401

We know that, predecessor of any number is 1 less than the number.

Question 117:

…….. is the successor of the largest 3-digit number.

Solution:

1000

We know that, largest 3-digit number = 999 .-. Successor of 999 = 999 +1 = 1000

Question 118:

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

Solution:

Number

If a is any whole number, then a – 0 = a

Question 119:

The smallest 6-digit natural number ending with 5 is ……..

Solution:

100005

We know that, smallest 6-digit natural number = 100000

Smallest 6-digit natural number ending with 5 = 100005

Question 120:

Whole numbers are closed under ……. and under ……..

Solution:

Addition, Multiplication

If a and b are any two whole numbers, then a + b=c (whole numbers).

Also, a x b = c (whole numbers)

Question 121:

Natural numbers are closed under ……. and under ……..

Solution:

Addition, Multiplication

If a and b are any two natural numbers, then a + b = c (natural numbers)

Also, a x b =c (natural numbers)

Question 122:

Division of a whole number by ……. is not defined.

Solution:

0 (Zero)

Division of a whole number by 0 is not defined.

Question 123:

Multiplication is distributive over ……. for whole numbers.

Solution:

Addition

If a, b and c are three whole numbers, then a x (b + c) = (a x b) + (a x c)

Question 124:

2395 x …….. = 6195 x 2395

Solution:

6195

If a and b are two whole numbers, then a x b=b x a [by commutative property]

Question 125:

1001 x 2002 = 1001 x (1001 + …….)

Solution:

1001

Let x be the missing number, then

1001 x 2002 = 1001 x(1001 + x)

=> 2002 = (1001 + x) => 2002 -1001 = x

∴ x= 1001 .

Question 126:

10001 x 0 = …….

Solution: o

If any number is multiplied by zero, then their product is always zero.

Question 127: 2916 x ……. = 0

Solution:

o

If any number is multiplied by zero, then their product is always zero.

Question 128:

9128 x ……. = 9128

Solution:

If any number is multiplied by 1, then it gives the same number.

Question 129:

125+(68+ 17) = (125+ …….) + 17

Solution:

68

If a, b andc are three whole numbers, then

a + (b + c) = (a + b) +c [by associative property]

Question 130:

8925 x 1 = …….

Solution:

8925

If any number is multiplied by 1, then the product is number itself,

Question 131:

19 x 12 + 19 = 19 x (12 + ……..)

Solution:

1

If a, b and c are three whole numbers, then ,

axb + axc=ax(b + c) [by distributive property]

Question 132:

24 x 35 = 24 x 18 + 24 x …….

Solution:

17

Let a be the missing number, then

24 x 35 = 24 x 18+ 24 x a => 24 x 35 -24 x 18 = 24 x a => 24(35- 18) = 24 x a => 24 x 17 =24 x a

∴ a = 17

Question 133:

32 x (27 x 19) = (32 x …….) x 19

Solution:

27

If a, b and c are any three natural numbers, then

a x (b x c)=(a x b) x c [by multiplicative property]

Question 134:

786 x 3+ 786 x 7 = …….

Solution:

7860

786 x 3 + 786 x 7 = 786 x (3 + 7)= 786 x 10= 7860

Question 135:

24 x 25 = 24 x …../4 = 600

Solution:

100

Let a be the missing number, then x 24

24 x 25 = 24 x (a/4) =(24/24) x 25 x 4 = a => a = 100

24 x 25 = 24 x (100/4) = 600

Question 136:

A number is a ……. of each of its factors.

Solution:

Multiple

By general rule, a number is a multiple of each of its factors.

Question 137:

…….. is a factor of every number.

Solution:

We know that, 1 is a factor of every number.

Question 138:

The number of factors of a prime number is ……

Solution:

Every prime number has only two factors, 1 and the number itself.

Question 139:

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

Solution:

Perfect

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

Question 140:

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

Solution:

Composite

By definition, the numbers having more than two factors, are called composite numbers.

Question 141:

2 is the only ……. number, which is even.

Solution:

Prime

Those numbers which are divisible by 1 and the number itself, are known as prime numbers.

2 is the only prime number which is even.

Question 142:

Two numbers having only 1 as a common factors, are called …….. numbers.

Solution:

Coprime

By definition, coprime numbers are those, whose HCF is 1.

Question 143:

Number of primes between 1 to 100 is ……..

Solution:

25

Prime numbers between 1 to 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 and 97.

Number of prime numbers between 1 to 100 = 25

Question 144:

If a number has ……. in ones place, then it is divisible by 10.

Solution:

Zero

According to divisibility test for 10, if a number has zero in ones place, then it is divisible by 10.

Question 145:

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

Solution:

0 or 5

According to divisibility test for 5, if a number has 0 or 5 in its ones place, then it is divisible by 5.

Question 146:

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

Solution:

2

According to the divisibility test for 2, if the last digit of a number is either 0 or 2 or 4 or 6 or 8, then the number is divisible by 2.

Question 147:

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

Solution:

Multiple

According to divisibility test for 3, if the sum of the digits of a number is a multiple of 3, then the number is divisible by 3.

Question 148:

If the difference between the sum of digits at odd places (from the right) and 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:

11

According to the divisibility test for 11, if the difference between the sum of digits at odd places and sum of digits at even places of a number is either 0 or divisible by 11, then number is divisible by 11.

Question 149:

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

Solution:

Multiples

It is a standard result.

Question 150:

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

Solution:

Factors

It is a standard result.

Question 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
(i)	The difference of two consecutive whole numbers	(a)	Odd
(ii)	The product of two non-zero consecutive whole numbers	(b)	0
(iii)	Quotient when zero is divided by another non-zero whole number	(c)	3
(iv)	2 added three times, to the smallest whole number	(d)	1
(v)	Smallest odd prime number	(e)	6
		(f)	Even

Solution:

(i) -+ (d)

Since, the difference of two consecutive whole numbers is always 1.

(ii) -> (f)

Since, the product of two non-zero consecutive whole numbers is always even.

(iii) -> (b)

Since, if zero is divided by any whole number, the quotient will always be zero.

(iv) -> (e)

2 added three times, to the smallest whole number i.e.

(2 x 3)+0=6 + 0=6

(v) -> (c)

Since, the smallest odd prime number is 3.

Question 152:

Arrange the following numbers in descending order.

8435, 4835, 13584, 5348, 25843

Solution:

We have, 8435, 4835, 13584, 5348, 25843

For arranging the numbers in descending order, we have to compare the numbers and arrange them from highest to lowest.

i.e.25843 > 13584 > 8435 > 5348 > 4835

Question 153:

On the following numbers, which is the greatest and which is the smallest?

38051425, 30040700, 67205602

Solution:

We have, 38051425, 30040700 and 67205602 On comparing the given numbers, we get

The greatest number = 67205602 and the smallest number = 30040700

Question 154:

Write the following in expanded form.

(a) 74836 (b) 574021 (c) 8907010

Solution:

Expanded form of given numbers are

(a) 74836 = 7 x 10000 + 4 x 1000 + 8 x 100+ 3 x 10+ 6 x 1

(b) 574021 = 5 x 100000 + 7 x 10000 + 4 x 1000+0 x 100+ 2 x 10+1 x 1

(c) 8907010 = 8 x 1000000 + 9 x 100000 + 0 x 10000 + 7 x 1000 + 0 x 100 + 1 x 10 + 0 x 1

Question 155:

As per the census of 2001, the population of four states are given below

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

Arrange the states in ascending and descending order of their populations.

Solution:

On arranging the population of four states in ascending order, we get 76210007 < 82998509 < 96878627 < 166197921

(Andhra Pradesh) (Bihar) (Maharashtra) (Uttar Pradesh)

Again, rearranging the population of four states in descending order, we get 166197921 > 96878627> 82998509 > 76210007

(Uttar Pradesh) (Maharashtra) (Bihar) (Andhra Pradesh)

Question 156: The diameter of Jupiter is 142800000 m. Insert commas suitably and write diameter according to International System of Numeration [ISN].

Solution: Given, diameter of Jupiter = 142800000 m

According to International System of Numeration,

Diameter of Jupiter = 142,800,000

Question 157:

India's population has been steadily increasing from 439 million in 1961 to 1028 million 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:

Given, population of India in 1961 = 439 million

= 439 x 1000000 = 439000000 [v 1 million = 1000000] and population of India in 2001 = 1028 million

= 1028 x 1000000 = 1028000000 [v 1 million = 1000000] / Total increase in population from 1961 to 2001

= Population in 2001 – Population in 1961 = 1028000000 – 439000000 = 589000000 = 589 x 1000000 = 589 million

So, the increase population in Indian System of Numeration = 58,90,00,000

Question 158:

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

Solution:

Given, radius of the Earth = 6400 km

= 6400000 m [1 km = 1000 m]
and radius of Mars = 4300000 m On comparing both the radii, we get
Radius of Earth > Radius of Mars
Difference between the two radii = 6400000 – 4300000 = 2100000 m Hence, the radius of Earth is bigger and by 2100000 m.

Question 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:
Population of Tripura = 3,199,203
In words, three million, one hundred ninty-nine thousand, two hundred three, and population of Meghalaya = 2,318,822
In words, two million, three hundred eighteen thousand, eight hundred twenty-two.

Question 160: In a city, polio drops were given to 212583 children on Sunday in March 2008 and to 216813 children in the next month. Find the difference of the numbers of children getting polio drops in the two months.
Solution:
Given, polio drops given in March 2008 = 212583
and polio drops given in April 2008 = 216813
Now, difference of the numbers of children = 216813 – 212583
= 4230
Hence, the difference of the number of children getting polio drops in the two months is 4230.

Question 161:
A person had Rs. 1000000 with him. He purchased a colour TV for Rs. 16580, a motorcycle for Rs. 45890 and a flat for Rs. 870000. How much money was left with him?
Solution:
Given, total money = Rs. 1000000
Money spent on a colour TV = Rs. 16580 Money spent on a motorcycle = Rs. 45890 and money spent on a flat = Rs. 870000 Total amount spent = 16580 + 45890 + 870000 = Rs. 932470
Money left with him = 1000000 – 932470 = Rs. 67530 Hence, Rs. 67530 was left with him.

Question 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:
We have,
Total tablets of vitamin A = 180000 Tablets distributed among children = 18734 Now, remaining vitamin A tablets = 180000 -18734 = 161266 Hence, the number of the remaining vitamin A tablets is 161266.

Question 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:
Given, Chinmay's total money = Rs. 610000 Money given to Jyoti by Chinmay = Rs. 87500 Money given to Javed by Chinmay = 1 126380 and money given to John by Chinmay = Rs. 350000 Money left with Chinmay = Total money – Distributed money

= 610000- (87500 + 126380 + 350000)
= 610000 – 563880 = Rs. 46120 Hence, Rs. 46120 was left with him.

Question 164:
Find the difference between the largest number of seven digits and the smallest number of eight digits.
Solution:
The largest 7-digit number = 9999999 The smallest 8-digit number = 10000000
Now, difference between the smallest 8-digit number and the largest 7-digit number = 10000000 – 9999999 =1

Question 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 which is the greatest possible number. What are these digits?
Solution:
Given, total number of digits = 10
First four digits of the mobile number = 9, 9, 8,7 and last three digits of the mobile number = 3,5,5
Now, to make the mobile number, the possible distinct digits are 6, 4, 2,1 and 0.
For making the greatest mobile, we can select the digits 6, 4 and 2.
Required mobile number = 9987642355 Hence, the required digits are 6, 4 and 2.

Question 166:
A mobile number consists of ten digits. First four digits are 9, 9, 7 and 9. M^ke the smallest mobile number by using only one digit twice from 8, 3, 5, 6, 0.
Solution:
Given, total number of digits = 10
and first four digits of the mobile number = 9, 9, 7, 9 Also, given digits = 8, 3, 5, 6, 0
Now, to make the smallest mobile number, we will use the smallest digit twice, i.e. 0.
Required mobile number = 9979003568

Question 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 the question,
Digit at ten's place = 4
Digit at unit's place = – of ten's place digit = – x 4 = 1 4 4
Digit at hundred's place = 0 Digit at thousand's place = 5 x Digit at unit's place =5×1=5
Digit at ten thousand's place = 2 x Digit at ten's place =2×4=8
Required number = 85041

Question 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:
Given digits are 2, 0, 4, 7, 6 and 5.
Using each digit only once,
The greatest six-digit number = 765420 The smallest six-digit number = 204567 Now, the sum of these numbers = 765420 + 204567 = 969987

Question 169:

A factory has a container filled with 35874 L of cold drink. In how many bottles of 200 mL capacity each, can it be filled?

Solution:

Given, total cold drink in the container = 35874 L

= 35874000 mL [1 L = 1000 mL]

and capacity of one bottle = 200 mL

Now, number of bottles required = Total cold drink in the container/Capacity of one bottle = 35874000 mL/200 mL

= 179370

Hence, 179370 bottles of 200 mL are required to fill 35874 L of cold drink.

Question 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:

Given, total population of town = 450772

One out of every 14 persons, is illiterate.

Now, total illiterate persons = Total population of town/14 = 450772/14 = 32198

Hence, the number of illiterate persons in the town is 32198.

Question 171:

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

Solution:

LCM of 80, 96,125 and 160 by division method,

2	80, 96, 125, 160
2	40, 48, 125, 80
2	20, 24, 125, 40
2	10, 12, 125, 20
2	5, 6, 125, 10
3	5, 3, 125, 5
5	5, 1, 125, 5
5	1, 1, 25, 1
5	1, 1, 5, 1
	1, 1, 1, 1

LCM of 80, 96, 125 and 160 = 2s x 3 x 53 = 12000

Question 172:

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

Solution:

According to the question, 5 must appear at ten's place.

Now, for the greatest number, digits (0-9) should be arranged in descending order, i.e. 9, 8, 7, 6, 5, 4, 3, 2, 1,0

The greatest number of 5 digits = 98756

and for the smallest number, digits (0-9) should be arranged in ascending order, i.e. 0,1,2, 3, 4, 5, 6, 7, 8,9

The smallest number of 5 digits = 10253

Question 173:

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

Solution:

Let x be added to 2 kg 300 g or 2300 g to make it 5 kg 68 g or 5068 g.

Then, 2 kg 300 g+ x = 5kg 68 g [v1kg = 1000g]

=» 2300g + x = 5068 g

=> x = 5068 g – 2300 g .

x = 2768 g

Hence, 2 kg 768g should be added to 2 kg 300 g to make it 5 kg 63 g.

Question 174:

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

Solution:

Given, total number of packets = 50

Weight of each packet = 120 g

Weight of a box = 50 x 120 g = 6000 g = 6 kg [1000 g = 1 kg]

Required number of boxes = 900/6 = 150

Question 175:

How many lakh make five billion?

Solution:

We know that,

10 lakh = 1 million

100 lakh = 10 million

100 lakh = 1crore

1000 million = 100 crore

1 billion = 100 crore = 100 x 100 lakh = 10000 lakh So, 5 billion = 5×10000 = 50000 lakh

Question 176:

How many million make 3 crore?

Solution:

We know that,

1 crore = 10 million 3 crore =3×10 million = 30 million

Question 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:

(a) We have, 874+ 478

Rounded off 874 to nearest hundreds = 900 and rounded off 478 to nearest hundreds = 500

So, estimated sum = 900 + 500= 1400

(b) We have, 793 + 397

Rounded off 793 to nearest hundreds = 800 and rounded off 397 to nearest hundreds = 400

So,

estimated sum = 800 + 400 = 1200

(c) We have, 11244 + 3507

Rounded off 11244 to nearest hundreds = 11200 and rounded off 3507 to nearest hundreds = 3500 So, estimated sum = 11200 + 3500= 14700

(d) We have, 17677 + 13589

Rounded off 17677 to nearest hundreds = 17700 and rounded off 13589 to nearest hundreds = 13600 So, estimated sum = 17700 + 13600= 31300

Question 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:

(a) We have, 11963 – 9369

Rounded off 11963 to nearest tens = 11960 and rounded off 9369 to nearest tens = 9370

So, estimated difference = 11960 – 9370 = 2590

(b) We have, 76877-7783

Rounded off 76877 to nearest tens = 76880 and rounded off 7783 to nearest tens = 7780

So, estimated difference = 76880-7780= 69100

(c) We have, 10732-4354

Rounded off 10732 to nearest tens = 10730 and rounded off 4354 to nearest tens = 4350

So, estimated difference = 10730 – 4350 = 6380

(d) We have, 78203 -16407

Rounded off 78203 to nearest tens = 78200 and rounded off 16407 to nearest tens = 16410

So, estimated difference = 78200-16410= 61790

Question 179:

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

(a) 87 x 32 (b) 311 x 113 (c) 3239 x 28 (d) 1385 x 789

Solution:

(a) We have, 87 x 32

Rounded off 87 to nearest tens = 90 and rounded off 32 to nearest tens = 30 So, estimated product = 90 x 30 = 2700

(b) We have, 311 x 113

Rounded off 311 to nearest tens = 310 and rounded off 113 to nearest tens = 110 So, estimated product = 310 x 110 = 34100

(c) We have, 3239 x 28

Rounded off 3239 to nearest tens = 3240 and rounded off 28 to nearest tens = 30

So, estimated product = 3240 x 30 = 97200,

(d) We have, 1385 x 789

Rounded off 1385 to nearest tens = 1390 and rounded off 789 to nearest tens = 790 So, estimated product = 1390 x 790 = 1098100 ,

Question 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: Here, population of a town in 1991 = 78787

Rounded off 78787 to nearest hundreds = 78800 and population of a town in 2001 = 95833

Rounded off 95833 to nearest hundreds = 95800 .-.Increase in population = 95800 – 78800= 17000

Question 181: Estimate the product 758 x 6784 using the general rule.

Solution:

We have, 758 x 6784

Rounded off 758 to nearest hundreds = 800 and rounded off 6784 to nearest hundreds = 7000 So, estimated product = 800 x 7000= 5600000

Question 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:

Given, a garment factory produced shirts = 216315 Produced trousers = 182736 Produced jackets = 58704

Total production of all the three items in that year = Sum of all items = 216315 + 182736 + 58704 = 457755 Hence, the total production of all the three items in that year is 457755.

Question 183:

Find the LCM of 160, 170 and 90.

Solution:

LCM of 160, 170 and 90 by division method,

2	160, 170, 90
2	80, 85, 45
2	40, 85, 45
2	20, 85, 45
2	10, 85, 45
3	5, 85, 45
3	5, 85, 15
5	5, 85, 5
17	1, 17, 1
	1, 1, 1

LCM of 160,170 and 90 = 25 x 32 x 5 x 17 = 24480

Question 184:

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

Solution:

We have, total fruit juice =13 L 200 mL= 13200 mL [1L = 1000mL]

and capacity of 1 glass = 60 mL

$$\therefore \text{Number of glasses that can be filled} = \frac{\text{Total fruit juice}}{\text{Capacity of 1 glass}} = \frac{13200}{60} = 220$$

Hence, 220 glasses each of 60 mL can be filled with 13 L 200 mL of fruit juice.

Question 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 successor of 67

Solution:

We know that, for getting the successor of a number, we add 1 in that number and for getting the predecessor, we subtract 1 from that number.

(a) Successor of 32 = 32 + 1 = 33

(b) Predecessor of 49 = 49 -1 = 48

(c) Predecessor of the predecessor of 56 = 56 -1 -1 = 54

(d) Successor of successor of 67 = 67 +1 +1 = 69 Now, required sum = 33 + 48 + 54 + 69 = 204

Question 186:

A loading tempo can carry 482 boxes of biscuits weighing 15 kg 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:

Given, number of boxes in a loading tempo = 482 Weight of each box = 15 kg Weight of 482 boxes = 482 x 15 = 7230 kg
and number of boxes in a van =518 Weight of each box = 15 kg
Weight of 518 boxes = 518 x 15 = 7770 kg Now, total weight = 7230 + 7770 = 15000 kg
Hence, the total weight that can be carried by both the vehicles, is 15000 kg.

Question 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:

Given, amount spent on food and decoration = Rs. 216766 Amount spent on jewellery = Rs. 122322 Amount spent on furniture = Rs. 88234 and amount spent on kitchen items = Rs. 26780 Total amount spent = 216766 + 122322 + 88234 + 26780 = Rs. 454102 Hence, the total amount spent by Leela on her daughter's marriage is Rs. 454102.

Question 188:

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

Solution:

Here, number of strips in each box = 5 Number of capsules in 1 strip = 12 Weight of medicine in each capsule = 500 mg So, total weight of medicine in one box = 5 x 12 x 500 = 30000 mg
Now, total weight of medicine in 32 such boxes
= 32 x 30000 = 960000 mg

$$\therefore \text{Total weight} = \frac{960000}{1000}\,\text{g}$$
$$= 960\,\text{g}$$

Question 189:

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

Solution:

Firstly, we have to find the LCM of 3, 4 and 5.

2	3, 4, 5
2	3, 2, 5
3	3, 1, 5
5	1, 1, 5
	1, 1, 1

LCM of 3, 4 and 5 = 2 x2x3x 5= 60 Now, required number = LCM of 3, 4 and 5 + Remainder = 60 + 2=62
Hence, the required number is 62.

Question 190:

A merchant has 120 L of oil of one kind, 180 L of another kind and 240 L 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 in tin?

Solution:

Here, the greatest capacity of tin will be equal to the HCF of 120,180 and 240.

2	120
2	60
2	30
3	15
5	5
	1

2	180
2	90
3	45
3	15
5	5
	1

2	240
2	120
2	60
2	30
3	15
5	5
	1

Prime factorization Of 120 = 2 x 2 x 2 x 3 x 5
Prime factorization Of 180 = 2 x 2 x 3 x 5 x 3
Prime factorization of 240 = 2 x 2 x 2 x 3 x 5 x 2
Common factors of 120,180 and 240 are 2 (occurring twice), 3 and 5.
Thus, the HCF of 120,180 and 240 = 2 x 2 x 3 x 5 = 60 Greatest capacity of tin = HCF of 120,180 and 240 = 60 L

Question 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:

We know that, 4-digit number is said to be an odd number, if unit place digit is an odd number (i.e. 1 or 5).
Given digits are 1,2, 4 and 5.
Total such odd numbers are 4125, 4215, 1245, 1425, 2145, 2415, 4251, 4521, 5241, 5421, 2451 and 2541.
Also, we know that, any 4-digit number can be divisible by 4, if the last two digits of that number is divisible by 4.
Consider a number 4521.
If we interchange the first and the last digits, then the new number = 1524 Here, we see that the last two digits (i.e. 24), which is divisible by 4.
So, 1524 is divisible by 4.
Required 4-digit number = 4521.
There are three more numbers which is divisible by 4, such that 2415, 2451 and 4125.

Question 192:

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

Solution:

Given digits are 1,2,3 and 4.
For smallest number, we will arrange the given digits in ascending order. But the number should also be divisible by 4, so we will arrange the digits in such a way that it's last two digits should be divisible by 4.
Required number = 1324

Question 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:

Here, the greatest denomination of stamps that Fatima must buy to mail the three parcels, will be equal to the HCF of Rs. 20, Rs. 28 and Rs. 36.

2	20
2	10
5	5
	1

2	28
2	14
7	7
	1

2	36
2	18
3	9
3	3
	1

Prime factorization of 20 = 2 x 2 x 5

Prime factorization of 28 = 2 x 2 x 7

Prime factorization of 36 = 2 x 2 x 3 x 3

Common factors of 20, 28 and 36 are 2(occurring twice).

HCF of 20, 28 and 36 = 2 x 2 = 4

Thus, the greatest denomination of stamps that Fatima must buy, is Rs. 24.

Question 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:

Here, the minimum number of packets of each brand that the shopkeeper should buy, is equal to the LCM of 12,15 and 21.

So, LCM of 12, 15 and 21 by division method,

2	12, 15, 21
2	6, 15, 21
3	3, 15, 21
5	1, 5, 7
7	1, 1, 7
	1, 1, 1

LCM of 12,15 and 21 = 2^2 x 3 x 5 x 7 = 420

Now, minimum number of packets of brand A = 420/12 = 35

Minimum number of packets of brand S = 420/15 = 28

Minimum number of packets of brand C = 420/21 = 20

Question 195:

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

Solution:

Given, length of the floor = 8 m 96 cm

= 8 x 100 cm + 96 cm [∵1 m = 100 cm]

= (800 + 96) cm = 896 cm

and breadth of the floor = 6 m 72 cm

= 6 x 100 cm+72 cm [∵ 1 m = 100 cm]

= (600 + 72)cm = 672 cm

Area of the floor = Length x Breadth = 896 x 672 cm^2

Now, length of the square tile = HCF of 896 and 672 Prime factorization of 896 and 672

2	896
2	448
2	224
2	112
2	56
2	28
2	14
7	7
	1

2	672
2	336
2	168
2	84
2	42
3	21
7	7
	1

896 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 7 672=2 x 2 x 2 x 2 x 2 x 7 x 3
Common factors of 896 and 672 = 2 x 2 x 2 x 2 x 2 x 7 = 224 So, length of a square tile = HCF of 896 and 672 = 224 cm Area of a square tile = 224 x 224 cm^2

$$\therefore \text{Minimum number of square tiles} = \frac{\text{Area of the floor}}{\text{Area of a square tile}}$$

$$= \frac{896 \times 672}{224 \times 224} = 12$$

Hence, the minimum number of square tiles of the same size need to cover the entire floor is 12.

Question 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:

Given, number of English books = 780 and number of Science books = 364
To find the minimum number of books in each shelf, we have to find the HCF of 780 and 364.

364)780(2
728
52)364(7
364
×

New, HCF of 780 and 364 = 52
Hence, the minimum number of books in each shelf = HCF of 780 and 364 = 52.

Question 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:

Given, in a colony of 100 blocks, there are 100 flats numbering from 1 to 100.
Here, school van and bus stop at the same stoppage means it is the LCM of both stoppages.
Now, LCM of 6 and 10

2	6, 10
3	3, 5
5	1, 5
	1, 1

LCM of 6 and 10 = 2 x 3 x 5= 30

It shows that first time they both meets at 30th stoppage and the next time they again meet at a multiple of 30.
Multiples of 30, which are less than 100, are 30, 60 and 90.
Hence, both will stop on the stop blocks 30th, 60th and 90th, if they start from the entrance of the colony.

Question 198:

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

Solution:

We know that, a number is divisible by 11, if the difference of sum of digits at even and odd places is either zero or divisible by 11.
(a) We have, 5335
Sum of digits at even places from the right =3+5=8 Sum of digits at odd places from the right = 5+3=8 So, difference =8-8=0 Hence, it is divisible by 11.
(b) We have, 9020814
Sum of digits at even places = 1 + 0 + 0 = 1
Sum of digits at odd places from the right = 4+8 + 2 + 9 = 23
So, difference = 23 -1 = 22 (divisible by 11)
Hence, it is divisible by 11.

Question 199:

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

Solution:

We know that, the number is divisible by 4, if its last two digits or digits at ten's and one's place is divisible by 4.
(a) We have, 4096 .
4096 is divisible by 4. Since, its last two digits i.e. 96 is divisible by 4.
(b) We have, 21084
21084 is divisible by 4. Since, its last two digits i.e. 84 is divisible by 4.
(c) We have, 31795012
31795012 is divisible by 4. Since, its last two digits i.e. 12 is divisible by 4.

Question 200:

Using divisibility test, determine which of the following numbers are divisible by 9?
(a) 672 (b) 5652

Solution:

We know that, a number is divisible by 9, if the sum of its digits is divisible by 9.
(a) We have, 672
The sum of digits = 6 + 7 + 2 = 15, which is not divisible by 9.
(b) We have, 5652
The sum of digits = 5 + 6 + 5 + 2 = 18, which is divisible by 9.