Number System Questions For SSC CHSL PDF

Instructions

For the following questions answer them individually

Question 1

The number 323 has

A   three prime factors

B   five prime factors

C   two prime factors

D   no prime factor

   Answer: C

Explanation:

The number 323 can be written as :

323 = 17 * 19

where, both 17 and 19 are prime numbers.

Thus, 323 has 2 prime factors.

Question 2

The difference of a number consisting of two digits from the number formed by interchanging the digits is always divisible by

A   10

B   9

C   11

D   6

   Answer: B

Explanation:

let the digits of the no. be X and Y

number = 10x+y

reverse of no. = 10y+ x

now (10x+y) - (10y+x) = 9x-9y = 9(x-y)

as shown above that 9 will always be the factor, irrespective of the difference and the number

so it can be concluded that the resulting number will always be divisible by 9

Question 3

Find the least number which when divided by 12, 18, 36 and 45 leaves the remainder 8, 14, 32 and 41 respectively.

A 186

B 176

C 180

D 178

   Answer: B

Explanation:

Since, (12-8) = (18-14) = (36-32) = (45-41) = 4

we, need to find the L.C.M. of 12,18,36,45 and subtract 4 from it to get the required answer.

=> L.C.M. of 12, 18, 36 and 45 = 180

   => 180 - 4 = 176

Ans - (B)

Question 4

The least prime number is

A 2

B 0

C 1

D 3

   Answer: A

Explanation:

0 and 1 are not prime numbers

Between 2 and 3(both prime numbers), 2 is smaller

2 is the least prime number. (It is also the only even prime number).

Question 5

What is the arithmetic mean of first 20 odd natural numbers ?

A 19

B 17

C 22

D 20

   Answer: D

Explanation:
NOTE :- Sum of first 'n' odd natural numbers = n^2

Sum of first 'n' even natural numbers = n(n+1)

Sum of first 20 odd natural numbers = 20^2 = 400

Arithmetic mean = 400/20 = 20

Question 6

The least number which when divided by 6, 9, 12, 15 and 18 leaves the same remainder 2 in each case is :

A 180

B 182

C 178

D 176

   Answer: B

Explanation:
The numbers 6,9,12,15,18 leaves same remainder 2 in each case.

So, what we need to do is find the L.C.M. of these numbers and add 2 to it

=> L.C.M. of 6,9,12,15,18 = 180

=> Required no. = 180+2 = 182

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Question 7

The least number that should be added to 2055, so that the sum is exactly divisible by 27 is

A 28

B 24

C 27

D 31

   Answer: B

Explanation:

The remainder obtained by dividing 2055 by 27 = 3

So, the least number that should be 'subtracted' from 2055 to make it perfectly divisible by 27 = 3

and the least number that should be added = 27-3 = 24

Question 8

There are 40 hens and cats in a shed. The total number of legs in the shed is 128. How many cats are there in the shed?

A 16

B 20

C 24

D 28

   Answer: C

Explanation:

Let the number of hens and cats in the shed be 'h' and 'c' respectively.
We know that h+c = 40 ----- (1)
The number of hen legs = 2h
The number of cat legs = 4c
Total number of legs = 2h+4c
It is given that 2h+4c = 128 ----- (2)
Solving equations (1) and (2) we get,
h=16 and c=24.

Question 9

A number leaves a remainder of 2 when divided by 3, 6 when divided by 7, and 10 when divided by 11. Find the smallest such number.

A 188

B 153

C 230

D 461

   Answer: C

Explanation:
Let the number be N.
=> N = 3a -1 = 7b-1 = 11c - 1
Or N+1 is divisible by all 3, 7, and 11
The smallest number which is divisible by 3, 7, and 11 is LCM (3,7,11) = 231
So, N+1 = 231 or N = 230
Thus, C is the correct answer.

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Question 10

Two numbers 'a' and 'b' are such that the sum of 8% of a and 4% of b is equal to three fourth of the sum of 9% of a and 8% of b. Find the ratio of a and b?

A   4:3

B   8:5

C   7:4

D   2:1

   Answer: B

Explanation:
We have been given that sum of 8% of a and 4% of b is equal to three fourth of the sum of 9% of a and 8% of b
So we have
$\frac{8a}{100} + \frac{4b}{100} = \frac{3}{4}(\frac{9a}{100} + \frac{8b}{100})$
=> $8a + 4b = \frac{3}{4}(9a + 8b)$
$32a + 16b = 27a + 24b$
=> 5a = 8b
=> $\frac{a}{b} = \frac{8}{5}$

Question 11

Five-seventh of three-eighth of five-sixth of a number is 225. What is the number?

A   976

B   1008

C   1024

D   1076

   Answer: B

Explanation:

Let the number be 'N'

It is given that,

$\frac{5}{7} * \frac{3}{8} * \frac{5}{6} * N = 225$

$=> N = 225 * \frac{7}{5} * \frac{8}{3} * \frac{6}{5}$

$=> N = 1008$

Question 12

A three digit number is greater than the number formed by reversing its digits by 693. How many such three digit numbers are possible?

A 20

B 30

C 40

D None of the above

   Answer: B

Explanation:

Let the number be abc. So, the reversed number is cba.

=> (100a +10b + c) - (100c + 10b + a) = 693

=> 99(a-c) = 693

=> a-c=7

So, (a,c) can be (7,0), (8,1), and (9,2). The digit in the tenth's place can be any number from 0 to 9.

So, 3*10 = 30 numbers are possible.

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Question 13

There are three natural numbers such that the second natural number is 4 times the first and the third number is 3 times the second. If the average of the 3 numbers is 34, then what is the difference between the largest and the smallest numbers?

A 78

B 82

C 98

D 66

   Answer: D

Explanation:

Let the first number be x. Then the second number would be 4x and the third number will be 12x. Hence the sum of the three numbers is x + 4x + 12x = 17x

Thus average = 17x/3

Hence we get, 17x/3 = 34

=> x = 6

Thus the largest number is 12*6 = 72 and smallest number is 6. Hence the required difference is 72 - 6 = 66

Question 14

There are some hens and dogs in a shed. The total number of animals is 42 and the number of legs of all the animals is 120. What is the number of hens in the shed?

A 18

B 20

C 22

D 24

Answer: D

Explanation:

Let the number of hens be 'h' and the number of dogs be 'd'

It is given that $h + d = 42$ ----- (1)

We know that a hen has two legs and a dog has 4 legs.

So the total number of legs = $2h + 4d$

It is given that $2h + 4d = 120$ ----- (2)

Solving equations (1) and (2) we get,

$h = 24$ and $d = 18$

Thus the number of hens is 24.

Question 15

A number when divided by 253 leaves a remainder of 128, find the remainder when the same number is divided by 23.

A 16

B 12

C 13

D 17

Answer: C

Explanation:

Let the number be x

Based on the given information, x can be represented as 253a+128

x/23 = (253a+128)/23 = (11a + 5) + 13/23

Therefore, the remained when the number is divided by 23 is 13.

Question 16

Two positive numbers have a difference of 3. Sum of the squares of the numbers is 369, then the sum of the numbers would be

A   27

B   25

C   24

D   30

   Answer: A

Explanation:
Let the two numbers be x and $(x + 3)$
$\implies x^2 + (x + 3)^2 = 369$
$\implies 2x^2 + 6x - 360 = 0$
$\implies x^2 + 3x - 180 = 0$
$\implies (x + 15)(x - 12) = 0$
The numbers are positive, x = 12, Therefore, the given numbers are 12 and 15
Therefore, sum of the numbers is $(12 + 15)$ = 27
Hence, the correct Option is A

Question 17

The smallest natural number when divided by 4,5,6 gives a remainder of 3,4,5 respectively is?

A   51

B   49

C   61

D   59

   Answer: D

Explanation:
Let the number be N
If the remainder 4 is 3, the remainder is essentially -1
N = 4p-1 = 5q-1 = 6r-1
N+1 is a multiple of 4,5,6
Smallest value of N+1 is the LCM of 4,5,6
LCM (4,5,6) = 60
Hence, the required number is 59.

Question 18

6/7 of a number is 8 more than the 2/3 of the same number. What is 1/3 of the number?

A 84

B 126

C 14

D 42

   Answer: C

Explanation:
Let the required number be x, then
6x/7 - 2x/3 = 8
=> (18x - 14x) = 168
4x = 168
=> x = 42
Hence 1/3 of the given number would be 42/3 = 14

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Question 19

The least number which when divided by 7, 8, and 9 leaves a remainder of 6, 7, and 8 respectively is

A 1007

B 251

C 2015

D None of these

   Answer: D

Explanation:
Remainder of 6 when divided 7 is essentially a remainder of -1.
Similarly for other two divisors as well the remainder is -1.
Let us assume the number to be N
=> N = 7a-1 = 8b-1 = 9c-1
Nor, N+1 is a multiple of all 7, 8, and 9
So smallest such N+1 will be the LCM (7,8,9) = 504
So, smallest N will be 503.

Question 20

Sowmith wrote all the numbers from 100 to 200 on a black board. What is the number of one's that have been used to write these numbers?

A 111

B 115

C 120

D 122

Answer: C

Explanation:
Among the numbers from 100 to 200:
One in hundred's place is present in 100 numbers
One in ten's place is present in 10 numbers
One in unit's place is present in 10 numbers
Thus the total number of one's used = 100+10+10 = 120.
Hence, Option C.

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