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Name of the Bundle	Intermediate Bundle V1	Subject	APTITUDE
Торіс	Number System-1	Last updated on	14 August 2024

CONCEPT 1 – TYPES OF NUMBERS

- 1) The Smallest prime number is_____.
 - a) 1
 - b) 4
 - c) 2
 - d) 3

Ans: c) 2

Explanation:

- A prime number is a number whose only factors are 1 and itself.
- 0,1 can't be a prime number.
 - "0" has no factor.
 - 1 has only one factor which is itself.

2) The Largest prime number is _____.

- a) Even
- b) Odd
- c) Either Even or Odd
- d) Neither Even nor Odd

Ans: b) Odd.

Explanation:

• Every prime number other than 2 is an odd number. So, the largest number will also be an odd number.



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3) The Smallest composite number is _____.

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

Ans:a) 4

Explanation: All the natural numbers which are not prime numbers are composite numbers

4) 1 is a number which is_____.

- a) Prime
- b) Neither prime nor composite
- c) Composite
- d) Either prime or composite

Ans: b) Neither prime nor composite

Explanation:

- Prime number should have only 2 factors which are 1 and itself.
- Composite numbers should have more than factors.
- 1 has only one factor which is itself. Therefore, it is neither prime nor composite.

5) The smallest odd composite number is _____.

- a) 4
- b) 5
- c) 8
- d) 9

Ans: d) 9

6) The only even prime number is _____.

- a) 0
- b) 4
- c) 2
- d) 3

Ans: c) 2



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7) Which of the following pairs is a co-prime?.

- a) 7,56
- b) 13,91
- c) 4,46
- d) 51,52

Ans: d) 51,52

Explanation:

Two numbers are coprime if they have no common factor other than 1 (Their • HCF should be 1).

8) How many pairs of three consecutive odd prime numbers are there?

- a) 0
- b) 3
- c) 2
- d) 1

Ans: d) 1

Explanation:

3,5,7 – Only one such pair exists.

9) Which of the following is a Twin prime pair?

- a) 11,17
- b) 11,19
- c) 11,13
- d) 3,7

Ans: c) 11,13

Explanation:

Two prime numbers whose difference is two are called twin primes.



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CONCEPT 2 - FACE & PLACE VALUE OF A NUMBER

- 10) The place value of 6 in the numeral 856973 is _____.
 - a) 60
 - b) 600
 - c) 6000
 - d) 6

Ans: c) 6000

Explanation:

- It is a value represented by a digit in a number on the **basis of its position** in the number.
- Place value of 6 in 856973 = 6*1000 = 6000.

11) The face value of 5 in the numeral 2536974 is ______.

- a) 500000
- b) 5
- c) 5000
- d) 50000

Ans: c) 5

Explanation:

- It is the actual value of a digit in a number.
- Face value of 5 in 2536974 = 5.



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12) The difference between the Place value and the face value of 7 in the numeral 567823 is ______.

- a) 7
- b) 7000
- c) 693
- d) 6993

Ans: d) 6993

Explanation:

- Place value of 7 in 567823 = 7000.
- Face value of 7 in 567823 = 7.
- Difference between the Place value and the face value of 7 in the numeral 567823 = 7000 7 = 6993.

13) Find the sum of the place value and face value of 2 in 36259.

- a) 200
- b) 202
- c) 2
- d) 198

Ans: b) 202

Explanation:

- Place value of 2 in 36259 = 200.
- Face value of 7 in 36259 = 2.
- Sum of the Place value and the face value of 7 in the numeral 36259
 - = 200 + 2 = **202**.

14) The sum of the place values of 1 in 1111 is

- a) 1.
- b) 1111.
- c) 1000.
- d) 4.

Ans: b)1111.

Explanation: Sum of the place values of 1 = 1000 + 100 + 10 + 1 = 1111.



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CONCEPT 3 - DIVISIBILITY RULES

<u>1. 2ⁿ (2, 4, 8,...) RULE</u>

- 15) Which one of the following numbers is exactly divisible by 2?
 - a) 2567
 - b) 1163
 - c) 3522
 - d) 5003

Ans: c) 3522

Explanation:

Divisibility by 2: If Last digit of the number is divisible by 2. (Last digit must be an even number).

16) If the number 32595y is divisible by 2, then the val

- a) 3.
- b) 0.
- c) 5.
- d) 1.

Ans: b) 0.

Explanation:

Divisibility by 2: Last digit must be an even number.

17) Which one of the following numbers is exactly divisible by 4?

- a) 5672.
- b) 6786.
- c) 9342.
- d) 1114.

Ans: a) 5672.

Explanation:

Divisibility by 4: If Last two digits of the number are divisible by 4.



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18) If the number 52638y is divisible by 4, then Minimum & Maximum value of y = ?

- a) 0,2.
- b) 2,8.
- c) 4,8.
- d) 0,8.

Ans: d) 0,8.

Explanation:

- Divisibility by 4: If Last two digits of the number are divisible by 4.
- Possible two digits are 80,84,88.
- Therefore, Minimum value of y = 0.

Maximum value of y = 8.

19) Which one of the following numbers is exactly divisible by 8?

- a) 76856.
- b) 35374.
- c) 95722.
- d) 18612.

Ans: a) 76856.

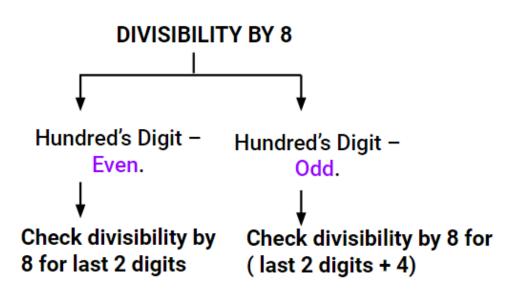
Explanation:

Divisibility by 8 : If Last three digits of the number are divisible by 8.



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Option a) 76856

- Hundred's Digit Even.
- Check whether the last two digits are divisible by 8.
- 56 is divisible by 8.
- Therefore the number 76856 is divisible by 8.

Option b) 35374

- Hundred's Digit Odd.
- Check whether the (last two digits + 4) are divisible by 8.
- 74 +4 = 78 is not divisible by 8.
- Therefore the number 35374 is not divisible by 8.

Option c) 95722

- Hundred's Digit Odd.
- Check whether the (last two digits + 4) are divisible by 8.
- 22 +4 = 76 is not divisible by 8.
- Therefore the number 95722 is not divisible by 8.

Option d) 18612

- Hundred's Digit Even.
- Check whether the last two digits are divisible by 8.
- 12 is not divisible by 8.
- Therefore the number 18612 is not divisible by 8.



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20) If the number 1234y is divisible by 8, then the value of y = ?

- a) 8.
- b) 4.
- c) 2.
- d) 0.

Ans: b) 4.

Explanation:

1234y:

- Hundred's Digit Odd.
- The last two digits + 4 (4y + 4) are divisible by 8. Since the number is divisible by 8.
- Think of some multiples of 8 that will start with 4 as its ten's digit : 40, 48.
- 44 + 4 = 48 is divisible by 8.
- Therefore the Possible values of y is 4.

21) If the number 5623y is divisible by 8, then the value of y = ?

- a) 6.
- b) 0.
- c) 2.
- d) 4.

Ans: c) 2.

Explanation:

5623y:

- Hundred's Digit Even.
- The last two digits (3y) are divisible by 8. Since the number is divisible by 8.
- Think of some multiples of 8 that will start with 3 as its ten's digit : 32.
- Therefore the Possible values of y is 2.



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22) If the number 8695y2 is divisible by 8, then the Minimum & Maximum value

of y = ?

- a) 0,8.
- b) 3,7.
- c) 2,6.
- d) 1,9.

Ans: d) 1,9.

Explanation:

8695y2:

- Hundred's Digit Odd.
- The last two digits + 4 (y2 + 4 = y6) are divisible by 8. Since the number is divisible by 8.
- Think of some multiples of 8 that will end with 6 as its unit digit :16, 56, 96.
- 12 + 4 = 16, 52 + 4 = 56, 92 + 4 = 96 are divisible by 8.
- Therefore the Minimum value of y = 1 & the maximum value of y = 9.

23) If the number 623y56 is divisible by 8, then the Minimum & Maximum value

of y = ?

- a) 1,9.
- b) 0,7.
- c) 0,8.
- d) 2,9.

Ans: c) 0,8.

Explanation:

623y56:

- The last 2 digits are divisible by 8. Therefore, y must be an even number.
- The minimum even is 0 & maximum even number is 8.



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<u>2. 5º (5, 25, 125,...) RULE</u>

- 24) Which one of the following numbers is exactly divisible by 5?
 - a) 123651.
 - b) 236594.
 - c) 111110.
 - d) 123569.

Ans: c) 111110.

Explanation:

Divisibility by 5 : If Last digit of the number is divisible by 5. (Last digit must be 0, 5).

25) If the number 62356y is divisible by 5, then the Minimum & Maximum value

of y = ?

- a) 0,5.
- b) 1,6.
- c) 2,4.
- d) 3,5.

Ans: a) 0,5.

Explanation:

Divisibility by 5 : If Last digit of the number is divisible by 5. (Last digit must be 0, 5).

26)Which one of the following numbers is exactly divisible by 25?

- a) 26365.
- b) 14575.
- c) 63555.
- d) 93435.

Ans: b) 14575.

Explanation:

Divisibility by 25 : If Last 2 digits of the number are divisible by 25.

(Last 2 digits must be 00, 25, 50, 75).



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27) Find the least number that can be subtracted from 25655 to make it divisible by 25.

- a) 0.
- b) 20.
- c) 5.
- d) 10

Ans: c) 5.

Explanation:

Divisibility by 25 : If Last 2 digits of the number are divisible by 25.

(Last 2 digits must be 00, 25, 50, 75).

28) Which one of the following numbers is exactly divisible by 125?

- a) 23675.
- b) 62325.
- c) 54255.
- d) 62375.

Ans: d) 62375.

Explanation:

Divisibility by 125 : If Last 3 digits of the number are divisible by 125.

(Last 3 digits must be 000, 125, 250, 375, 500, 625, 875).



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3. DIGIT SUM (3, 9) RULE

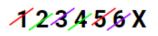
29) What minimum value should be assigned to 'X' so that the number 123456X is exactly divisible by 3?

- a) 3.
- b) 0.
- c) 2.
- d) 1.

Ans: b) 0.

Explanation:

- Digit sum -> Sum of all the digits of the number.
- Divisibility by 3 -> Digit sum of a number should be divisible by 3.
- Cancel out 3, 6, 9 or digits that sum to 3, 6, 9.
- Given that the number 123456X is divisible by 3, its digit sum must be divisible by 3.



• X = 0.

30) What minimum value should be assigned to 'X' so that the number 96372X4 is exactly divisible by 9?

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

Ans: c) 5.

Explanation:

- Divisibility by 9 -> Digit sum of a number should be divisible by 9.
- Cancel out 9 or digits that sum to 9.
- Given that the number 96372X4 is divisible by 9, its digit sum must be divisible by 9.



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4. DIVISIBILITY BY 11 RULE

31)Which of the following numbers is divisible by 11?

- a) 332155.
- b) 202963.
- c) 181560.
- d) 203456.

Ans: d) 203456.

Explanation:

Divisibility by 11: The difference of the sum of the digits in the odd places and the sum of digits in the even place is '0' or multiple of 11 is divisible.

Option a) 332155;

Option b) 202963;

Option c) 181560;

Option d) 203456;



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(OR)

Step 1: Pair two digits from the unit digit.

Step 2: Write down the remainders by the 2 digit pair by 11

Step 3: Sum of the Remainders must be Zero to be divisible by 11.

Option a) 332155 ; R -> Remainder

33 21 55

R 0 -1 0

0 - 1 + 0 = -1 is not equal to zero

Therefore, Not divisible by 11.

Option b) 202963;

20 29 63

R -2 -4 -3 -2 -4 -3 = -9 is not equal to zero

Therefore, Not divisible by 11.

Option c) 181560;

18 15 60

R -4 +4 +5 -4 +4 +5 = +5 is not equal to zero

Therefore, Not divisible by 11.

Option d) 203456;

20 34 56

R -2 +1 +1 -2 +1 +1 = 0. Therefore, it is divisible by 11.



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3.UNIT DIGIT

SAME UNIT DIGIT

Rule of 0,1,5,6

0 -> (1230)^12345 -> UD =0

No of zero at the end = 12345

1 -> (1231)^12345 -> UD =1

5 -> (1235)^12345 -> UD =5

6 -> (1236)^12345 -> UD =6

Any power of 0,1,5,6 -> UD= same

Rule of 4,9

4-> (4)^odd -> UD =4

4-> (4)^even -> UD =6

9-> (9)^odd -> UD =9

9-> (9)^even -> UD =1



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Rule of 2,3,7,8

- 2^1->2
- 2^2->4
- 2^3->8
- 2^4->6
- 2^5->2
- 2^6->4
- 2^7->8
- 2^8->6

UD-> 2,4,8,6 repeat after every power 4

cyclicity ->2ⁿ = 2ⁿ+4

(143)²⁵ -> 25/4 , R= 1 (143)¹ -> UD= 3

- 3^1->3
- 3^2->9
- 3^3->7
- 3^4->1
- 3^5->3

UD-> 3,9,7,1 repeat after every power 4



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Ex (143)^133^123 ->(133^123)/4 ->1^123->R=1

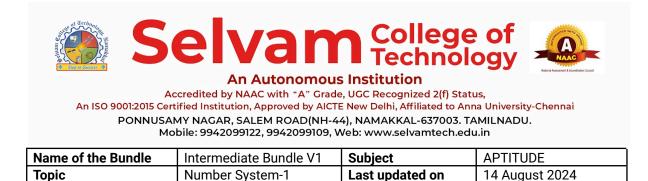
(143)^1 -> UD= 3

Similarly, the cyclicity of 7 & 8 is also 4.

1) Find the unit place digit in 71 x 72 x 73 x 74 x 75 x 76 x 77 x 78 x 79.

a) 2 b) 0 c) 4 d) 6 sol 5 x even =0 UD =0 Ans: b) 0

2)The Unit digit in 4 x 38 x 764 x 1256 is _____. a) 5 b) 6 c) 8 d) 4 sol 4 x 8x 4x 6 =8 UD =8 Ans: c) 8



4.REMAINDER THEOREM

Remainder:

1) The remainder is the value left after the division. if the dividend is not completely divided by the divisor.

2) if the dividend is completely divided by the divisor, then in that case the remainder will be zero.

Remainder theorem

dividend

divisor <--5) 77 (15--> Quotient

75

2 -> Remainder

Dividend = divisor x Quotient + Remainder

Note : Remainder is always less than the divisor.

1) A number when divided by 280 leaves 73 as the remainder. When the same number is divided by 35. The remainder will be _____.

a) 3 b) 4 c) 2 d) 7

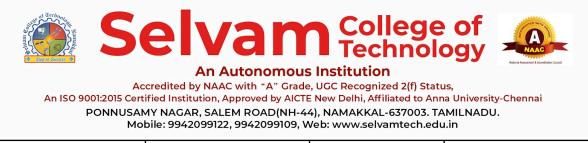
solutions

divisor <--35) 73 (2--> Quotient

70

3 ->Remainder

Ans: a) 3



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2) When a number is divided by 45, it leaves a remainder of 28. The remainder when the same number is divided by 15 is

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

Ans: a) 13

3)When a number n is divided by 5 the remainder is 2.When n^2 is divided by 5, the remainder will be:

a) 3 b)0 c) 4 d) 1 divisor <- 5) 4 (0-> Quotient 4 ------4 ->Remainder

Ans: c) 4

4)When the integer n is divided by 9, the remainder is 4. What is the remainder if 12n is divided by 9?

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

Ans: b) 3

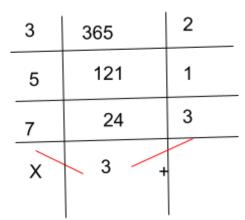


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5)Find the numbers when successively divided by 3,5&7 leaves a remainder 2,1&3 respectively and the last quotient is 3

a)360 b) 365 c) 362 d) 3	a)360
--------------------------	-------

successively divided



Ans: b) 365

6)Find the numbers when successively divided by 2,3&5 leaves a remainder 1,2&3 respectively and the last quotient is 1.

a)36 b) 65 c) 50 d) 53 Ans: d) 53