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Contents

Chapter

1

Number System

1. Find the greatest possible number which on dividing 2307 and 3105 leaves remainders of 7 and 5 respectively.
   - (A) 110
   - (B) 102
   - (C) 100
   - (D) 105

   [RRB NTPC CBT-2 16-06-2022 (Shift-III)]

2. If 11-digit number $88p554085k6$, $k \neq p$, is divisible by 72, then what is the value of $(3k + 2p)$?
   - (A) 13
   - (B) 12
   - (C) 23
   - (D) 7

   [RRB NTPC CBT-2 13-06-2022 (Shift-II)]

3. A two-digit positive number is such that the product of its digits is 24. When 18 is added to the number, the digits interchange their places. Which smallest positive number should be subtracted from the given number to make it a perfect square?
   - (A) 0
   - (B) 8
   - (C) 12
   - (D) 10

   [RRB NTPC CBT-2 12-06-2022 (Shift-II)]

4. If an 8-digit number 256139A4 is divisible by 11, find the value of A.
   - (A) 9
   - (B) 8
   - (C) 6
   - (D) 7

   [RRB NTPC CBT-2 10-05-2022 (Shift-II)]

5. Let $x = 55^{100} + 55^{101} + 55^{102}$. Which of the following prime number is NOT a factor of x?
   - (A) 3
   - (B) 79
   - (C) 71
   - (D) 11

   [RRB GROUP-D 27-09-2022 (Shift-III)]

6. A number, when divided by the sum of 335 and 265, gives three times the difference between 335 and 265 as the quotient and 35 as the remainder. What is the number?
   - (A) 128235
   - (B) 127535
   - (C) 126035
   - (D) 124535

   [RRB GROUP-D 22-08-2022 (Shift-I)]

7. What digit should come in the place of 'x' so that the given 6-digit number; $28x232$ is exactly divisible by 88?
   - (A) 9
   - (B) 5
   - (C) 3
   - (D) 7

   [RRB GROUP-D 18-09-2022 (Shift-I)]

8. The number of non-square numbers between 87^2 and 88^2 is :
   - (A) 184
   - (B) 164
   - (C) 174
   - (D) 154

   [RRB GROUP-D 16-09-2022 (Shift-I)]

9. If the 8-digit number $3x5479y4$ is divisible by 88 and the 8-digit number $425139z2$ is divisible by 9, then what is the greatest possible value of $(3x + 2y - z)$?
   - (A) 33
   - (B) 37
   - (C) 25
   - (D) 35

   [RRB GROUP-D 09-09-2022 (Shift-III)]

10. Seven times a number reduced by 14 is equal to the sum of 5 times the number and 6. Find the number.
    - (A) 5
    - (B) 20
    - (C) 15
    - (D) 10

    [RRB GROUP-D 01-09-2022 (Shift-I)]

11. Three numbers $x \leq y \leq z$ which are co-prime to each other are such that the product of the first two numbers is 143 and that of the last two numbers is 195. The sum of the three numbers is _____ .
    - (A) 45
    - (B) 29
    - (C) 39
    - (D) 62

    [RRB GROUP-D 01-09-2022 (Shift-II)]

12. If 21022 is divided by both 8 and 5, then which of the following number pairs can not be the last two digits a, b of number $21022ab$?
    - (A) $a = 8$, $b = 0$
    - (B) $a = 2$, $b = 0$
    - (C) $a = 0$, $b = 0$
    - (D) $a = 4$, $b = 0$

    [RRB 02-11-2018 (Shift-III)]

13. What is remainder when 2^{20} is divided by 3?
    - (A) 2
    - (B) 3
    - (C) 0
    - (D) 1

    [RRB NTPC 03-02-2021 (Shift-III)]

14. Find the remainder when 19^{300} is divided by 20?
    - (A) 3
    - (B) 1
    - (C) 4
    - (D) 2

    [RRB NTPC 29-01-2021 (Shift-III)]

15. What is remainder when $7^{29} + 4$ is divided by 6?
    - (A) 3
    - (B) 7
    - (C) 5
    - (D) 1

    [RRB NTPC 28-01-2021 (Shift-III)]

16. If $1^2 + 2^2 + 3^2 + \ldots + 14^2 = 1015$, Then, $3^2 + 6^2 + 9^2 + \ldots + 42^2$ is equal to :
    - (A) 9135
    - (B) 9325
    - (C) 9235
    - (D) 9315

    [RRB NTPC 29-12-2020 (Shift-I)]

17. Consider the given question and decide which of the following statements is/are sufficient to answer the question.

    Is X – 5 even? X is a real number
    Statements:
    - (i) X – 15 belongs to integer
    - (ii) X – 10 is an odd integer
    - (A) Statement (i) alone is sufficient while statement (ii) alone is insufficient
    - (B) Neither statement (i) nor (ii) is sufficient
    - (C) Statement (ii) alone is sufficient while statement (i) alone is insufficient
    - (D) Both statement (i) and (ii) are sufficient

    [RRB ALP CBT1, 09/08/2018, Shift 1]

18. Find a two digit number which is exactly times the product of its digits?
    - (A) 24
    - (B) 12
    - (C) 48
    - (D) 36

    [RRB ALP CBT1, 09/08/2018, Shift 1]

19. The difference between the place values of 9 and 5 in the number 428693745 is:
    - (A) 90995
    - (B) 99995
    - (C) 89995
    - (D) 8995

    [RRB ALP CBT1, 09/08/2018, Shift 3]

20. The difference between the place values of '4' and '2' in the number 833749502 is :
    - (A) 49998
    - (B) 30098
    - (C) 39098
    - (D) 39998

    [RRB ALP CBT1, 10/08/2018, Shift 2]

21. If the number $x4441$ is divisible by 11, what is the face value of x?
    - (A) 2
    - (B) 5
    - (C) 4
    - (D) 3

    [RRB ALP CBT1, 10/08/2018, Shift 3]

22. Given $17 \times 29 = 493$, then $170 \times 0.029 = $?
    - (A) 0.0493
    - (B) 4.93
    - (C) 0.493
    - (D) 49.3

    [RRB ALP CBT1, 10/08/2018, Shift 3]

23. If the 8 digit number 136p 5785 is divisible by 15, then find the least possible value of p?
    - (A) 1
    - (B) 4
    - (C) 2
    - (D) 3

    [RRB ALP CBT1, 13/08/2018, Shift 3]

24. If 192 pens cost is ₹10, how many pens can be bought for ₹5?
(A) 96   (B) 72
(C) 48   (D) 56
[RRB ALP CBT1, 13/08/2018, Shift 3]

25. Among the following which is a rational number?
(A) $\sqrt[3]{2}$ (B) $\sqrt[3]{12}$
(C) $\sqrt[3]{8}$ (D) $\sqrt[3]{4}$
[RRB ALP CBT1, 13/08/2018, Shift 3]

26. If each of the vowels in the word 'MEAT' is kept unchanged and each of the consonants is replaced by the previous letter in the English alphabet, how many four-lettered meaningful words can be formed with the new letters, using each letter only once in each word?
(A) 3   (B) 4
(C) 1   (D) 2
[RRB ALP CBT1, 14/08/2018, Shift 3]

27. 'P' is the smallest positive integer such that every positive integer N greater than 'P' can be written as a sum of two composite numbers. Then 'P' is:
(A) 10   (B) 3
(C) 11   (D) 6
[RRB ALP CBT1, 17/08/2018, Shift 1]

28. If the number $x3451$ is divisible by 3, where x is a digit, what can be the sum of all such values of x?
(A) 15   (B) 16
(C) 11   (D) 14
[RRB ALP CBT1, 20/08/2018, Shift 2]

29. The sum of numbers from 1 to 100 (inclusive of both) is
(A) 5050   (B) 5500
(C) 5005   (D) 5505
[RRB ALP CBT1, 21/08/2018, Shift 1]

30. If the number $x4562$ is divisible by 9, what is the face value of x?
(A) 1   (B) 2
(C) 3   (D) 4
[RRB ALP CBT1, 21/08/2018, Shift 1]

31. Which of the following pairs in NOT a pair of twin primes?
(A) 71, 73   (B) 131, 133
(C) 191, 193   (D) 11, 13
[RRB ALP CBT1, 21/08/2018, Shift 2]

32. A positive integer, which when added to 1000, given a sum which is greater than 10.06 when it is multiplied by 100. This positive integer is:
(A) 1   (B) 7
(C) 3   (D) 5
[RRB ALP CBT1, 29/08/2018, Shift 1]

33. Which of the numbers given below is exactly divisible by 12?
(A) 43688   (B) 14632
(C) 28544   (D) 57816
[RRB ALP CBT1, 29/08/2018, Shift 3]

34. Which of the following numbers is irrational?
(A) $\sqrt[3]{64}$ (B) $\sqrt{64}$
(C) $\sqrt[6]{64}$ (D) $\sqrt[4]{64}$
[RRB ALP CBT1, 30/08/2018, Shift 1]

35. In a 3-digit number, the hundreds digit is 4 times the units digit and the tens digit is thrice the units digit, The sum of the digits is 8. What is the tens digit in the number?
(A) 6   (B) 3
(C) 4   (D) 9
[RRB ALP CBT1, 30/08/2018, Shift 3]

36. Among the following which is a rational number?
(A) $\sqrt[3]{32}$ (B) $\sqrt[5]{32}$
(C) $\sqrt[4]{32}$ (D) $\sqrt[6]{32}$
[RRB ALP CBT1, 31/08/2018, Shift 1]

37. What is the difference between the place value and face value of 3 in 273965?
(A) 2997   (B) 2035
(C) 0   (D) 3962
[RRB ALP CBT1, 31/08/2018, Shift 2]

38. Which of the following number is divisible by 12?
(A) 73412   (B) 63412
(C) 83412   (D) 93412
[RRB ALP CBT1, 31/08/2018, Shift 2]

39. Read the following question and decide which of the given statements is/are sufficient.
If X is a natural, is X + 6 odd?
Statements:
1. X-15 is a whole number.
2. X-6 is an odd number.
(A) 2 alone is sufficient while 1 alone is not sufficient to answer the question.
(B) Both 1 and 2 together are sufficient to answer the question.
(C) Either 1 or 2 is sufficient to answer the question.
(D) 1 alone is sufficient while 2 alone is not sufficient to answer the question.
[RRB ALP CBT1, 31/08/2018, Shift 3]

40. Find the unit digit of the following :
$(1234)^{102} + (1234)^{103}$
(A) 2   (B) 4
(C) 0   (D) 1
[RRB (NTPC) 28-4-2016 Shift 2]

41. $(2^{25} + 2^{26} + 2^{27} + 2^{28})$ is a multiple of which of the following numbers?
(A) 11   (B) 7
(C) 15   (D) 9
RRB JE (CBT-1) Exam 02-6-2019 Shift 2

42. If unit digit of $x^3 = n$ and 'n' is a prime number, then what are the possible options for the values of x between 1 to 9?
(A) 2, 3, 4, 5   (B) 3, 5, 7, 8
(C) 1, 5, 3   (D) 3, 5, 7
RRB JE (CBT-1) Exam 23-5-2019 Shift 2

43. When a number is divided by a divisor, the remainder is 24. When twice the same number is divided by the same divisor, the remainder is 15. Find the divisor.
(A) 33   (B) 23
(C) 9   (D) 35
[RRB JE (CBT-1) Exam 27-5-2019 Shift 2]
❏❏

Chapter 1

Number System

Solutions

1. (C) H.C.F. of $(2307 - 7)$ and (3105)
H.C.F. of 2300 and 3100 = 100

2. (A) Number 88P554085K6

Divisible by 72–If number is completely divisible by both 3 and 8. Then the number will also completely divisible by 72.

Divisible by 8–Last three digits of number divisible by 8.

$$= \frac{5K6}{8}$$

Both 3 and 7 will be possible value of K.

Divisible by 3–Sum of the digits of number is divisible by 3 or multiple of 3.

Sum of digits $= 8 + 8 + P + 5 + 5$
$\qquad + 4 + 0 + 8 + 5 + K + 6$
$\qquad = 49 + P + K$

on Putting value of K
$\qquad = 49 + P + 3$
$\qquad = 52 + P$

21 and 7 will be possible values of P.

But $K \neq P$

7 will not be the value of K and P.

$\therefore$ Then $P = 2$ and $K = 3$

Hence $(3K + 2P) = (3 \times 3 + 2 \times 2)$
$\qquad = 9 + 4$
$\qquad = 13$

3. (D) Let, unit digit $\qquad = x$
$\qquad$ Tens place. $\qquad = y$
$\qquad\qquad xy \qquad = 24 \qquad$ ...(i)
Then Number $\quad = 10y + x$
If the digits are interchanged then obtained new number box $= 10x + y$
$\qquad 10x + y = 10y + x + 18$
$\qquad 9x = 9y + 18$
$\qquad x = y$
$\qquad x - y = 2$ ...(ii)
$\qquad (x - y)^2 = (2)^2$

$(x - y)^2 + 4xy = 4 + 4xy$
$(x + y)^2 = 2^2 + 4 \times 24$
$(x + y)^2 = 4 + 96$
$\qquad x + y = 10 \qquad$ ...(iii)
$\qquad x - y = 2 \qquad$ ...(ii)
$\underline{(+)}$
$\qquad 2x = 12$
$\qquad x = 6$
And $\qquad y = 4$
$\qquad$ Number $= 10y + x$
$\qquad\qquad = 10 \times y + 6$
$\qquad\qquad = 46$

Nearest Perfect Square number less than 46
$\qquad\qquad = 36$

Difference of two numbers
$\qquad\qquad = 46 - 36$
$\qquad\qquad = 10$

4. (B) Number 256139A4

Divisible by 11 The difference between the sum of odd digits and the sum of even digits is exactly divisible by 11.

Difference,
$(2 + 6 + 3 + A) = (5 + 1 + 9 + 4)$
$\qquad (11 + A) = (19)$
$\qquad\qquad A = 19 - 11$
$\qquad\qquad A = 8$

Hence, 8 is value of A.

5. (C) $x = 55^{100} + 55^{101} + 55^{102}$
$\qquad = 55^{100}[1 + 55^1 + 55^2]$
$\qquad = 55^{100}[1 + 55 + 3025]$
$\qquad = 55^{100}[3081]$
$\qquad = 5^{100} \times 11^{100} \times 3 \times 13 \times 79$

71 is not a factor of x.

6. (C) Divisor $= 335 + 265 = 600$
Quotient $= 3(335 - 265)$
$\qquad = 3 \times (70) = 210$
Dividend= Divisor $\times$ Quotient + Remainder
Dividend $= 600 \times 210 + 35$

Dividend $= 126000 + 35$
Dividend $= 126035$
Hence, option (C) is correct.

7. (D) Number of 6 digits 28x232

Divisible by 88–If a number is exactly divisible by 8 and 11 then that number is also exactly divisible by 88.

Divisible by 8– If last three digits are divisible by 8.

Number 28x232
Last three terms = 232
this number is completely divisible by 8.

Divisible by 11.

Number

$$2 \quad 8 \quad x \quad 2 \quad 3 \quad 2$$

Difference $= (8 + 2 + 2) - (2 + x + 3)$
$\qquad = 12 - (5 + x)$
$\qquad = 7 - x$

If the value of x is set to 7. Then this number will be exactly divisible by 11.

8. (C) We know that, x and $x + 1$ are two consecutive natural numbers. Then the number of non-square numbers among those numbers is always $2x$.

If $\qquad 87 = n$
and, $\qquad 88 = 87 + 1 = n + 1$
Then, $\quad 2n = 2 \times 87$
$\qquad\qquad = 174$

Hence, Option (C) is correct.

9. (A) Number 3x5479y4

Divisible by 88–If a number is exactly divisible by 8 and 11 then that number will also exactly divisible by 88.

Divisible by 8–Last three digits of number, exactly divisible by 8.

Column 1:

```
8) 9y4 (123
   8
   ──
   18
   16
   ──
    24
    24
   ──
    ×
```

value of $y = 8$

Divisible by 11 $3x$ 5 4 7 9 8 4

Difference $= (3 + 5 + 7 + 8) - (x + 4$
$$+ 9 + 4)$$
$$= 23 - (17 - x)$$

number on Putting 6 as value of x
$425139z2$
Divisible by 9–Sum of the all digits
of number exactly divisible by 9.

Sum of digits. $= 4 + 2 + 5 + 1 + 3$
$$+ 9 + z + 2$$
$$= 26 + z$$

If the value of z is set to 1 then that
number will exactly divisible by 9.
Then, $3x + 2y - z$
$$= 3 × 6 + 2 × 8 - 1$$
$$= 18 + 16 - 1$$
$$= 34 - 1$$
$$= 33$$
Hence, option (A) is correct.

10. (D) $7x - 14 = 5x + 6$
$$7x - 5x = 6 + 14$$
$$2x = 20$$
$$x = 10$$

11. (C) $a × b = 143$
$$= 11 × 13$$
$$b × c = 195$$
$$= 13 × 15$$
$$b = 13, a = 11 \text{ and } c = 15$$

Sum of three numbers.
$$= 13 + 11 + 15$$
$$= 39$$

Hence, Option (C) is correct.

12. (B) Rule of divisiblity of 8, if a number
is divisible by 8 then last three digits
of number divisible by 8.
Rule of divisibility of 5, if a the last
digit of number is 0 or 5. Then that
number divisible by 5.
If we put $a = 2$ and $b = 0$,
Number will be 2102220 which is not
divisibile by 8.

Column 2:

13. (D) $\log \dfrac{x}{(2 + 2^{20})} = \dfrac{(3-1)^{20}}{3}$

$$\dfrac{2^{2n}}{3} = \dfrac{(3-1)^{20}}{3}$$

$$= 3^{20} + \text{........} (-1)^{20}$$

Except last term $(-1)^{20}$ all terms are
multiple of 3.

As, $(3 - 1)^{20} = 3 × P + (-1)^{20}$
As, remainder $= (-1)^{20}$
$\therefore \qquad\qquad = 1$

14. (B) $\dfrac{19^{300}}{20} = \dfrac{(20-1)^{300}}{20}$

$$= 20^{300} + \text{..........} (-1)^{300}$$

Except last term $(-1)^{300}$, all terms are
multiple of 20.
So,
$(20 - 1)^{300} = 20 × P + (-1)^{300}$
Hence, Remainder $= (-1)^{300} = 1$

15. (C) $\dfrac{7^{29} + 4}{6}$

$$\dfrac{(6+1)^{29}}{6} + \dfrac{4}{6}$$

$$= (6^{29} + \text{.......} + (1)^{29}) + 4$$

Except last term $(1)^{29}$ all terms are
multiple of 6.
So, $(6 + 1)^{29} = 6 × P + (1)^{29} + 4$
Hence, Remainder $= (1)^{29} + 4 = 5$

16. (A) If $1^2 + 2^2 + 3^2 + ... + 14^2 = 1015$
$$\text{...(i)}$$
$3^2 + 6^2 + 9^2 + ... + 42^2 = ?$
On Multiplying by 9 on both sides in
eqⁿ (i)
$9(1^2 + 2^2 + 3^2 + ... + 14^2) = 1015 × 9$
$3^2[1^2 + 2^2 + 3^2 + ... + 14^2] = 9135$
$3^2 + 6^2 + 9^2 + ... + 42^2 = 9135$

17. (C) Statement (i): $X - 15 = $ integer
Since, integer $-$ integer $=$ even or
odd.
x is also integer
Statement (ii): $x - 10 = $ odd integer
$\therefore$ odd $-$ odd $=$ even
$x - 5 = $ Even
Hence, only statement (ii) is enough
but statement (i) is not enough.

18. (A) Number of two digits $= (10x + y)$
According to question $10x + y = 3xy$
According to option (A), if value of

Column 3:

x is 2 and value of y is 4.
Number $= 10 × 2 + 4 = 24$
Hence, that number of two digits $=$
24

19. (C) 428693745
Place value of 9 $= 90000$
Place value of 5 $= 5$
Difference between place values.
$= 90000 - 5 = 89995$

20. (D) Place value of 4 and 2 in 8 3 3 7 4 9
5 0 2
$\qquad$ 40000 $\qquad$ 2
$\qquad$ Difference $= 40000 - 2$
$\qquad\qquad = 39998$

21. (D) $x4441$
Divisible by 11
$(x + 4 + 1) - (4 + 4)$
$x - 3$
If the value of x is set to 3, then
number will exactly divisible by 11.

22. (B) Just as $17 × 29 = 493$
Similarly
$$170 × 0.029 = \dfrac{170 × 29}{1000}$$
$$= \dfrac{4930}{1000}$$
$$= 4.93$$

23. (A) $136p5785$, to be exactly by 15, must
be divisible by 5 and 3 as well. To
be divisible by 15, the sum of all the
digits of the number must also be
exactly divisible by it.
$1 + 3 + 6 + p + 5 + 7 + 8 + 5$
$\qquad = 35 + p$
Now, $(35 + p)$, the will be divided
When $\qquad p = 1, 4, 7.....$
$\therefore$ Minimum value $= 1$

24. (A) $\therefore \quad ₹10 = 192$ Pens
$$₹1 = \dfrac{192}{10}$$
$$\therefore \quad ₹5 = \dfrac{192}{10} × 5$$
$$= 96 \text{ Pens}$$

25. (C) By options (C).
$$\sqrt[3]{8} = (2^3)^{\frac{1}{3}}$$
$$= 2$$

$$\frac{2}{1} = \frac{P}{a}$$

It will be a Rational number.

26. (D) According to question,
⇒ Each of the vowels in the word 'MEAT' is kept unchanged,
⇒ Each of the consonant is replaced by the previous letter,
So, M is changed to L.
And T is changed to S.
Hence, the new letter are L,E,A,S.
So, the new words are formed from the L,E,A and S.
SALE and SEAL are formed by the letter from L,E,A and S.
Hence, option (D) is correct

27. (C) By Option (C),
P = 11
P + 1 = 11 + 1 = 12
12 = (1 + 11), (2 + 10), (3 + 9), (4 + 8), (6 + 6)
(4 + 8), (6 + 6) is the pairs of divider number.
Hence, P = 11

28. (A) Given, number = $x3451$
The sum of the digits of a number divisible by 3 must also be divisible by 3.
$x + 3 + 4 + 5 + 1 = x + 13$
Possible value of $x = 2, 5, 8$
Sum of Possible values = 2 + 5 + 8
= 15

29. (A) Sum of all number from 1 to 100.
$$= \frac{n(n+1)}{2}$$
$$= \frac{100 \times 101}{2}$$
$$= 5050$$

30. (A) $x + 4 + 5 + 6 + 2 = x + 17$
Putting $x = 1$, The number will divisible by 9.
Hence, 1 will be the value of x.

31. (B) **Prime number :** All numbers grater than 1 which are not divisible by anything other than themselves and 1 are called prime number.
Twin Prime Numbers—Two Prime number whose difference is 2. They are called twin Prime numbers.
Hence, 131, 133 are twin prime numbers.

32. (B) $1000 + x > 10.06 \times 100$
$1000 + x > 1006$
$x > 1006 - 1000$
$x > 6$
Hence, the positive integers will be 7 as per option.

33. (D) If a number is divisible by 3 and 4 then that number will be divisible by 12.
Hence, Number 57816, is exactly divisible by 12.

34. (D) $\sqrt[4]{64} = \sqrt[4]{2 \times 2 \times 2 \times 2 \times 2 \times 2}$
$= 2\sqrt[4]{4}$
$\sqrt[4]{64}$ It is a irrational number.

35. (B) Let, number = xyz
According to question,
$x = 4z$ ...(1)
$y = 3z$ ...(2)
$x + y + z = 8$ ...(3)
on solving eqⁿ(1) and (2)
$$x = 4z \Rightarrow 4 \times \frac{y}{3}$$
$$x = \frac{4y}{3}$$
$$z = \frac{y}{3}$$
Now, putting value of x and z in egⁿ (3)
$$x + y + z = 8$$
$$\frac{4y}{3} + y + \frac{y}{3} = 8$$
$$\frac{4y + 3y + y}{3} = 8$$
$$8y = 8 \times 3$$
$$y = \frac{8 \times 3}{8}$$
$$y = 3$$
Hence, 3 is at tens place.

36. (B) $\sqrt[5]{32} = \sqrt[5]{2 \times 2 \times 2 \times 2 \times 2}$
$= 2$
This is a rational number.

37. (A) Place value of 3 in 273965 = 3000
And face value of = 3
Required difference = (Place value – Face value) = 3000 – 3 = 2997

38. (C) A number divisible by 12 is one that is also divisible by 3 and 4. Hence, Number 83412, is also divisible by12.

39. (B) X is a natural number.
i.e. in natural number 1, 2, 3, 4, ...
By statement (1)
X – 15 is whole number.
Whole number = (1, 3, 5, 7, 9, ... ∞)
Value of X will be more than 6
X = (7, 9, 11, 13, ... ∞)
By statement (1) and (2)
Value of X will be = (17, 19, 21, 23........)
X + 6 = 17 + 6 = 23 is odd number
Hence, statement (1) and (2) both are enough.

40. (C) Unit digit of $\left[(1234)^{102} + (1234)^{103}\right]$
= Unit digit of $4^{102} + 4^{103}$
= Unit digit of $(4^4 \times 25)^2 + (4^4 \times 25)^3$
= 6 + 4 = 10

41. (C) $2^{25} + 2^{26} + 2^{27} + 2^{28}$
$2^{25} [1 + 2^1 + 2^2 + 2^3]$
$= 2^{25} [1 + 2 + 4 + 8]$
$= 2^{25} \times [15]$
15 is multiple of 2^{25}. Hence, option (C) is correct answer.

42. (B) According to question,
Prime numbers from 1 to 9 are 2, 3, 5, 7. Then $x = 1, 2, 3, 5, 7$
$x^3 = n$
$2^3 = 8$
$3^3 = 27$
$5^3 = 125$
$7^3 = 343$
$8^3 = 512$
On adding numbers between 1 to 9, the unit digit will be a prime number, then the number will be 3, 5, 7, 8.
Hence, 3, 5, 7, 8 are possible numbers.

43. (A) Let Number = x
And divisor = y
Then, $y \times 1 + 24 = x$ ...(1)
When twice of number is divided by y.
Then $y \times 1 + 15 = 2x$ ...(2)
Putting the value of x in eqⁿ (1)
$y + 15 = 2 (y + 24)$
$y + 15 = 2y + 48$
$y = 33$

❑❑