

RRB

MATHEMATICS

Chapterwise

Solved Papers

(Computer Based Test)

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Publisher Declaration

Edited and Published by A.K. Mahajan for YCT Publications Pvt. Ltd.
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In the event of any dispute, the judicial area will be Prayagraj.

Rs. : 995/-

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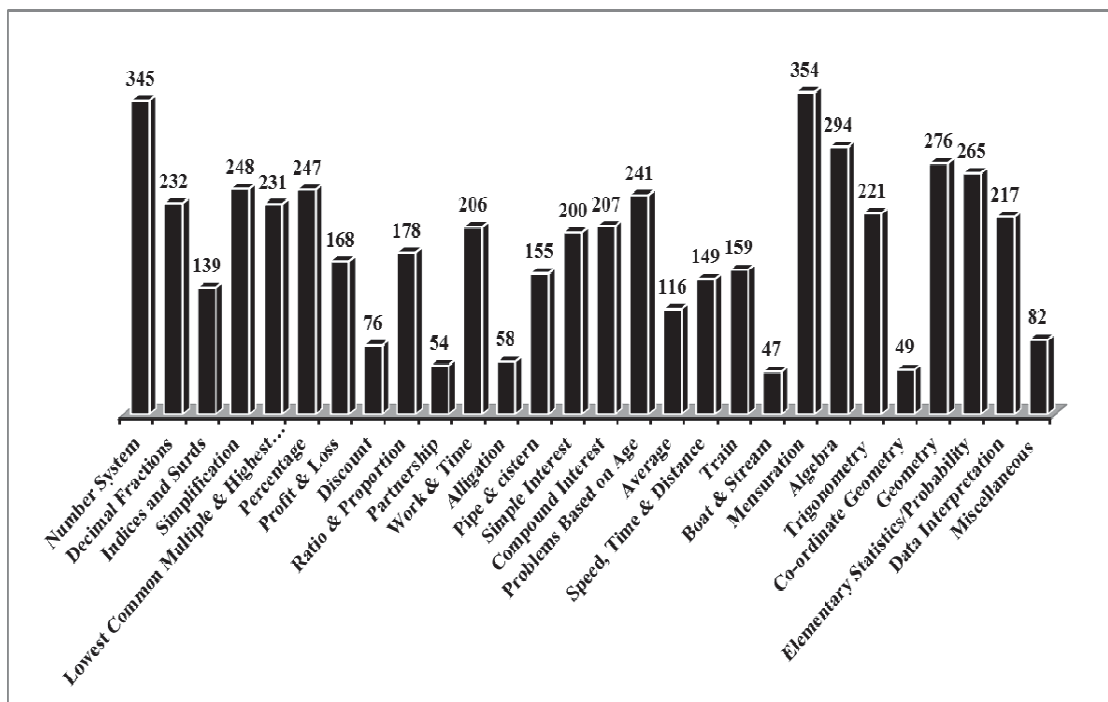
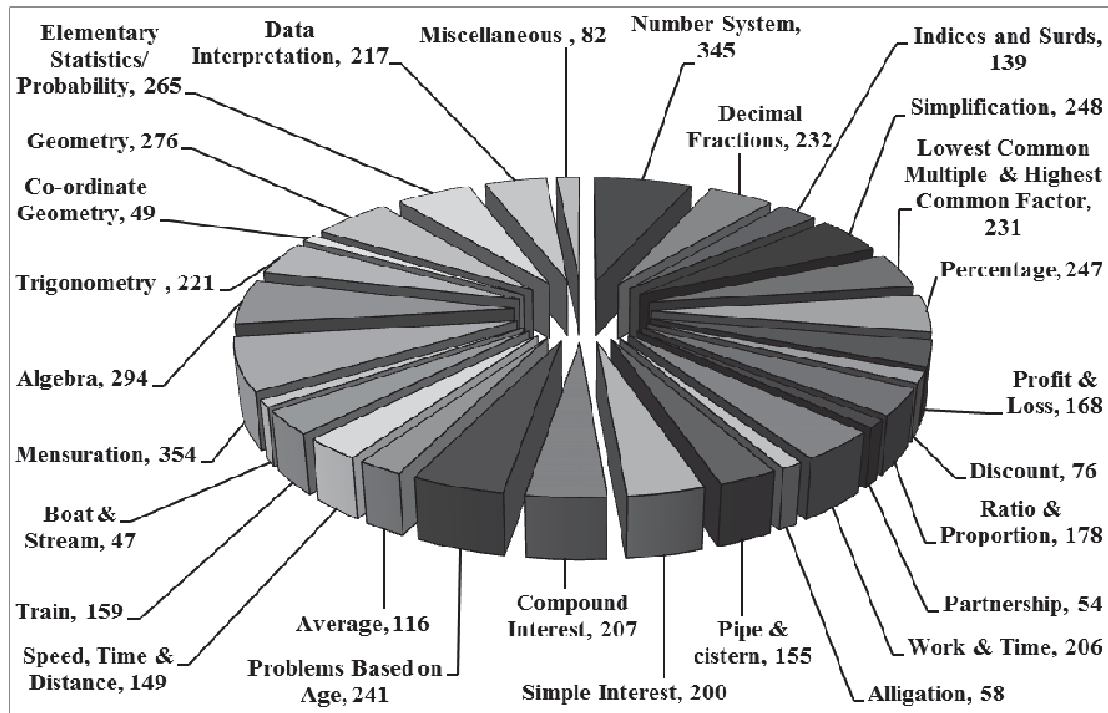
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Analysis chart of Question Papers of Various Previous Exams of RRB

| S.N. | Exams | Exam year | Total question paper | Total Maths questions |
|------|----------------------------------|--------------|----------------------|------------------------|
| 1. | RRB NTPC 2019 Stage-2 | 2022 | 15 | $35 \times 15 = 525$ |
| 2. | RRB Group-D 2019 | 2022 | 99 | $25 \times 99 = 2475$ |
| 3. | RRB NTPC 2019 Stage-1 | 2020-21 | 133 | $30 \times 133 = 3990$ |
| 4. | RPF Constable 2018 | 2019 | 17 | $35 \times 17 = 595$ |
| 5. | RPF SI 2018 | 2019 | 23 | $35 \times 23 = 805$ |
| 6. | RRB JE 2018 | 2019 | 38 | $38 \times 30 = 1140$ |
| 7. | RRB ALP 2018 Stage-2 | 2019 | 18 | $18 \times 40 = 720$ |
| 8. | RRB Paramedical 2019 | 2019 | 7 | $18 \times 7 = 126$ |
| 9. | RRB ALP/Tech. 2018 Stage-1 | 2018 | 30 | $25 \times 30 = 750$ |
| 10. | RRB Group D 2018 | 2018 | 135 | $25 \times 135 = 3375$ |
| 11. | RRB NTPC 2015 Stage-2 | 2017 | 9 | $35 \times 9 = 315$ |
| 12. | RRB NTPC 2015 Stage-1 | 2016 | 63 | $30 \times 63 = 1890$ |
| | | Total | 587 | 16,706 |

Note— In this book, out of total **587** papers of JE, ALP, NTPC, RPF Constable, RPF SI, Group D and Paramedical exams conducted by RRB, out of total **16706** questions asked from General Mathematics. Same behavior have been removed and chapterwise compilation of questions of different types has been presented. In this book, every effort has been made by the Examination Special Committee to accommodate maximum variety of questions, so that the examinees can be made aware of the variety of questions asked by RRB.

Trend Analysis of Previous Year RRB : JE, ALP, NTPC, Group-D, RPF SI & Constable, Paramedical Papers Through Pie Chart and Bar Graph



Type - 1

1. Which of the following numbers is divisible completely by both 9 and 11 ?

- (a) 277218 (b) 10098
(c) 12345 (d) 181998

RRB NTPC (Stage-II) 17/06/2022 (Shift-II)

Ans. (b) : Divisibility rule of 9 -

When the sum of the digits of a number is divisible by 9 then the number is also divisible by 9.

Divisibility rule of 11 -

When the difference between the sum of the digit in even and odd place of a number is 0 (zero) or a multiple of 11, then the number will also be divisible by 11.

From option (b),

$$1 + 0 + 0 + 9 + 8 = 18$$

i.e. 18 is divisible by 9

∴ Option (d) is divisible by 9.

And

$$10098 = (9 + 0) - (8 + 0 + 1) = 9 - 9 = 0$$

Hence option (b) 10098, is divisible by both 9 and 11.

2. Which of the following numbers is NOT divisible by 9 ?

- (a) 49104 (b) 77832
(c) 35253 (d) 45390

RRB NTPC (Stage-II) -12/06/2022 (Shift-II)

Ans. (d) : Divisibility rule of 9 : A number whose sum of its digit is exactly divisible by 9 then the number is always divisible by 9.

from options -

(a) $49104 \rightarrow 4 + 9 + 1 + 0 + 4 = 18$, divisible by 9.

(b) $77832 \rightarrow 7 + 7 + 8 + 3 + 2 = 27$, divisible by 9.

(c) $35253 \rightarrow 3 + 5 + 2 + 5 + 3 = 18$, divisible by 9.

(d) $45390 \rightarrow 4 + 5 + 3 + 9 + 0 = 21$, not divisible by 9.

3. Which of the following number is NOT divisible by 8?

- (a) 35792 (b) 35112
(c) 35412 (d) 35552

RRB NTPC (Stage-II) 15/06/2022 (Shift-III)

Ans. (c) : Divisibility rule of 8- If the last three digits of a number are divisible by 8, then the number is completely divisible by 8.

from the given options -

(a) 35 792

$$\frac{792}{8} = 99 \text{ (Completely divisible)}$$

(b) 35 112

$$\frac{112}{8} = 14 \text{ (Completely divisible)}$$

(c) 35 412

$$\frac{412}{8} = 51.5 \text{ (Not completely divisible)}$$

(d) 35 552

$$\frac{552}{8} = 69 \text{ (Completely divisible)}$$

Hence, option (c) is not divisible by 8.

4. If the 7 digit number $504x5y3$ is divisible by 11, then one of the values of the sum of x and y is:

- (a) 11 (b) 5
(c) 17 (d) 7

RRB NTPC (Stage-II) -13/06/2022 (Shift-II)

Ans. (c) : Given, $504x5y3$

Divisibility rule of 11:- If the difference of the sum of digits at even place and at odd place is zero or divisible by 11 then the given number will be divisible by 11.

$$504x5y3$$

$$(0 + x + y) - (5 + 4 + 5 + 3)$$

$$x + y - 17 = 0$$

$$x + y = 17$$

Hence, Sum of $x + y = 17$

5. If 11-digit number $88p554085k6$, $k \neq p$, is divisible by 72, then what is the value of $(3k + 2p)$?

- (a) 12 (b) 7
(c) 13 (d) 23

RRB NTPC (Stage-II) -13/06/2022 (Shift-II)

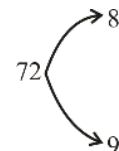
Ans. (c) : Given,

$$88p554085k6 \quad \text{Where, } k \neq p$$

Note- The number which is divisible by 72 is also divisible by 8 and 9.

Divisibility rule of 8- If the last three digit of the number are divisible by 8, then the number will be divisible by 8.

Divisibility rule of 9- If the sum of the all digits of a given number is divisible by 9, then number will be divisible by 9.



$$88p554085k6$$

On putting, $k = 3$

$$\frac{536}{8} = 67 \text{ (Completely divisible by 8)}$$

and

On putting $p = 2$

$$\frac{8+8+2+5+5+4+0+8+5+3+6}{9}$$

$$= \frac{54}{9} = 6 \text{ (Completely divisible)}$$

Then, $(3k + 2p)$
 $= 3 \times 3 + 2 \times 2$
 $= 13$

6. Find the remainder, when $171 \times 172 \times 173$ is divided by 17.

- (a) 9 (b) 8
 (c) 6 (d) 7

RRB Group-D 29/08/2022 (Shift-III)

Ans. (c) : According to the question,

$$\frac{171 \times 172 \times 173}{17}$$

$$\Rightarrow \frac{(170+1) \times (170+2) \times (170+3)}{17}$$

$$\Rightarrow \frac{1 \times 2 \times 3}{17}$$

$$\Rightarrow \frac{6}{17}$$

$$\Rightarrow 6 \text{ (Remainder)}$$

Hence option (c) is correct.

7. When a number is divided by a divisor, the remainder is 16. When twice the original number is divided by the same divisor, the remainder is 3. Find the value of that divisor

- (a) 29 (b) 51
 (c) 23 (d) 53

RRB Group-D 30/08/2022 (Shift-II)

Ans. (a) : Let, the original number be N, the divisor be d, quotient be q.

$$N = dq + 16$$

$$\therefore 2N = 2(dq + 16)$$

$$2N = 2dq + 32$$

When $(2dq + 32)$ is divided d then remainder is 3.

$2dq$ is completely divisible by d, then

$$\therefore \text{Required number} = 32 - 3 = 29$$

8. If the number 6484y6 is divisible by 8, then find the least value of y?

- (a) 3 (b) 4
 (c) 1 (d) 7

RRB Group-D 02/09/2022 (Shift-II)

Ans. (c) : Divisibility rule of 8 - If the last three digits of the given number are divisible by 8 then it will be divisible by 8.

On putting Least value of $y = 1$

$$\text{Number} = 648416$$

$$\text{Divided by} = \frac{416}{8} = 52$$

9. If the 15 digit number 4a5124356789734 is divisible by 9, then the value of "a" is

- (a) 1 (b) 4
 (c) 5 (d) 3

RRB GROUP-D - 22/09/2022 (Shift-III)

Ans. (b) : Divisibility rule of 9 - If the sum of the digits are divisible by 9, then the number is divisible by 9.

Number - 4a5124356789734

On divided by 9 -

$$\frac{4 + a + 5 + 1 + 2 + 4 + 3 + 5 + 6 + 7 + 8 + 9 + 7 + 3 + 4}{9}$$

$$= \frac{a + 68}{9} \Rightarrow \text{On putting } a = 4 \Rightarrow \frac{4 + 68}{9} = \frac{72}{9} = 8$$

Hence the value of $a = 4$

10. If the 8 digit number $3x5479y4$ is divisible by 88 and the 8 digit number $425139z2$ is divisible by 9, then find the maximum possible value of $(3x + 2y - z)$.

- (a) 33 (b) 37
 (c) 25 (d) 35

RRB Group-D 09/09/2022 (Shift-III)

Ans. (a) : On dividing $3x5479y4$ by 88 i.e. 8 and 11 Divisibility rule of 8 - If the last three digits of the given number are divisible by 8, then it will be divisible by 8.

Maximum possible value = 8

$$\frac{984}{8} = 123$$

Divisibility rule of 11 - The given number can only be completely divided by 11 if the difference of the sum of digits at odd place and sum of digits at even place in a number is 0 or multiple of 11.

$$3x547984 \Rightarrow (4+9+4+x) - (8+7+5+3)$$

$$17+x - 23 = 0$$

$$x = 6$$

On dividing $425139z2$ by 9

Divisibility rule of 9 :- If the sum of the digits of a number are divisible by 9, then the number is divisible by 9.

$$\frac{4 + 2 + 5 + 1 + 3 + 9 + z + 2}{9} = \frac{26 + z}{9}$$

On putting $z = 1$

$$\frac{26 + 1}{9} = \frac{27}{9} = 3$$

Hence,

$$3x + 2y - z = 3 \times 6 + 2 \times 8 - 1 = 33$$

11. 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) 1
 (c) 4 (d) 0

RRB NTPC 07.01.2021 (Shift-I) Stage Ist

Ans. (c) : Number = Divisor \times Quotient + Remainder

According to question,

$$n = 5 \times q + 2$$

On squaring both the sides,

$$n^2 = 25q^2 + 4 + 20q$$

On dividing by 5 -

$$\frac{n^2}{5} = 5q^2 + \frac{4}{5} + 4q \text{ or } n^2 = 5(5q^2 + 4q) + 4$$

Hence, required remainder will be 4.

12. How many numbers of the first 100 positive integers are divisible by 3 or 4 without a remainder?

- (a) 50 (b) 5
(c) 58 (d) 85

RRB NTPC 08.02.2021 (Shift-II) Stage Ist

Ans. (a) : Total number of positive integers which is divisible by 3 = $\frac{100}{3} = 33$

Total number of positive integers which is divisible by 4 = $\frac{100}{4} = 25$

Total number of positive integers which is divisible by 12 = $\frac{100}{12} = 8$

Hence, the total number of positive integers which is divisible by 3 or 4.
= (33 + 25 - 8)
= 50

13. How many numbers between 1 and 700 are completely divisible by 17?

- (a) 42 (b) 41
(c) 45 (d) 46

RRB NTPC 29.01.2021 (Shift-II) Stage Ist

Ans. (b) : Numbers between 1 and 700 which are exactly divisible by 17.

17, 34697.

$$l = a + (n-1) \times d$$

$$697 = 17 + (n-1) \times 17$$

$$680 = (n-1) \times 17$$

$$40 = n - 1$$

$$n = 41$$

Hence, required number (n) = 41

14. When 19^{300} is divided by 20, find the remainder.

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

RRB NTPC 29.01.2021 (Shift-II) Stage Ist

Ans. (b) : From question,

$$\frac{19^{300}}{20} \Rightarrow \frac{(20-1)^{300}}{20} \Rightarrow 0 + (-1)^{300} = 1(\text{Remainder})$$

15. Which of the following is the greatest three digit number that is divisible by 13?

- (a) 990 (b) 575
(c) 988 (d) 908

RRB NTPC 18.01.2021 (Shift-II) Stage Ist

Ans. (c) : Greatest three digit number = 999

$$\text{On dividing by } 13 = \frac{999}{13} = 76 \frac{11}{13}$$

∴ 999 divided by 13 leaves remainder 11.

∴ The greatest three digit number divisible by 13 = 999 - 11 = 988

16. The number 93248x6 are divisible by 11. Then digit x is equal to.

- (a) 5 (b) 2
(c) 8 (d) 7

RRB NTPC 03.02.2021 (Shift-I) Stage Ist

Ans. (d) : Divisibility rule of 11—In a given number if the difference of sum of all digit even place and placed at odd place is zero or multiple of 11, then that number will also be divisible by 11.

$$(9+2+8+6)-(3+4+x)$$

$$25 - (7+x) = 11$$

$$18 - x = 11$$

$$x = 18 - 11$$

Hence, x = 7

17. $(41^{43} + 43^{43})$ is divisible by:

- (a) 86 (b) 74
(c) 12 (d) 84

RRB NTPC 25.01.2021 (Shift-II) Stage Ist

Ans. (d) : $(x^n + a^n)$ is divisible by $(x + a)$, if the value of n is odd

∴ 43 is a odd number, therefore $(41^{43} + 43^{43})$ will be divisible by $41 + 43 = 84$

18. If pq is a two-digit number, then $pq - qp$ will be completely divisible by:

- (a) 9 (b) 7
(c) 6 (d) 5

RRB NTPC 07.04.2021 (Shift-II) Stage Ist

Ans. (a) : Let the two digit number (pq) = $10x + y$

Then, qp = $10y + x$

According to the question,

$$\begin{aligned} pq - qp &= 10x + y - (10y + x) \\ &= 10x + y - 10y - x \\ &= 9x - 9y \\ &= 9(x - y) \end{aligned}$$

Hence pq - qp will be completely divisible by 9.

19. If n is a natural number then $n^3 - n$ is always divisible by.....

- (a) 8 (b) 6
(c) 5 (d) 4

RRB NTPC 05.04.2021 (Shift-II) Stage Ist

Ans. (b) : ∵ n is a natural number.

$$\therefore n^3 - n = n(n^2 - 1) = n(n+1)(n-1)$$

$n(n+1)(n-1)$ {Multiplication of three consecutive natural numbers}

On putting the value of n = 2

$$n^3 - n = n(n+1)(n-1) = 2 \times 3 \times 1 = 6$$

Hence, it will always divisible by 6.

Note- The multiplication of three consecutive natural numbers will be always divisible by 6.

20. A number when divided by 7 leaves a remainder 4. What will be the remainder when the square of the same number is divided by 7?

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

RRB NTPC 29.01.2021 (Shift-I) Stage Ist

Ans. (a) : Let, Quotient = n

Number = Divisor × Quotient + Remainder

$$\text{Number} = 7 \times n + 4 \text{ (Given, Remainder = 4)}$$

On putting n = 1,

$$\text{Number} = 7 \times 1 + 4 = 11$$

On dividing the number by 7,

$$\text{Remainder} = 4$$

Hence, on dividing the square of 11 by 7

$$\text{Remainder} = \frac{(11)^2}{7} = \frac{121}{7} = 2$$

21. The smallest positive number which must be added to the greatest number of 4 digits in order that the sum may be exactly divisible by 307 is:
 (a) 307 (b) 132 (c) 306 (d) 176

RRB NTPC 17.01.2021 (Shift-II) Stage Ist

Ans. (b) : The greatest number of 4 digits = 9999

$$307)9999(32$$

$$\underline{-921}$$

$$789$$

$$\underline{614}$$

$$175$$

Hence, the smallest number to be added = $307 - 175 = 132$

22. How many numbers from 3 to 60 are odd numbers that are exactly divisible by 5?

- (a) 7 (b) 5 (c) 8 (d) 6

RRB NTPC 09.01.2021 (Shift-I) Stage Ist

Ans. (d) : Odd numbers between 3 to 60 which are divisible by 5.

5, 15, 25, 35, 45, 55

So total number of odd numbers from 3 to 60 which are exactly divisible by 5 = 6.

23. How many numbers between 300 and 1000 are divisible by 7?

- (a) 994 (b) 301 (c) 101 (d) 100

RRB NTPC 09.01.2021 (Shift-I) Stage Ist

Ans. (d) : Total number of numbers between 1 and 1000 which are divisible by 7

$$= \frac{1000}{7} = 142$$

Total number of numbers between 1 and 300 which are divisible by 7

$$= \frac{300}{7} = 42$$

Hence, Total number of numbers between 1 and 300 which are divisible by 7 between 300 and 1000 = $142 - 42 = 100$

24. Find the greatest number of five digits, which is exactly divisible by 468.

- (a) 99684 (b) 99486
 (c) 99864 (d) 99468

RRB NTPC 04.01.2021 (Shift-II) Stage Ist

Ans. (a) : The greatest number of five digits = 99999

$$468)99999(213$$

$$\underline{936}$$

$$639$$

$$\underline{468}$$

$$1719$$

$$\underline{1404}$$

$$315$$

Required number = $99999 - 315 = 99684$

25. In between 250–1000, how many numbers are completely divisible by 5, 6 & 7.

- (a) 5 (b) 7
 (c) 6 (d) 3

RRB NTPC 29.12.2020 (Shift-II) Stage Ist

Ans. (d) : LCM of 5, 6, 7 –

$$2 \mid 5, 6, 7$$

$$3 \mid 5, 3, 7$$

$$5 \mid 5, 1, 7$$

$$7 \mid 1, 1, 7$$

$$\hline 1, 1, 1$$

$$2 \times 3 \times 5 \times 7 = 210$$

∴ Numbers from 250 to 1000 which are divisible by 5, 6, 7 will be always divisible by 210 or in multiples of 210.

Therefore, the numbers are $210 \times 1, 210 \times 2, 210 \times 3, 210 \times 4, 210 \times 5 \dots\dots$

210, 420, 630, 840,

Hence, the required numbers = 3

26. The largest four-digit number that is exactly divisible by 83 is:

- (a) 9936 (b) 9954
 (c) 9960 (d) 9966

RRB NTPC 20.01.2021 (Shift-I) Stage Ist

Ans. (c) : The largest four-digit number = 9999

$$83)9999(12$$

$$\underline{83}$$

$$169$$

$$\underline{166}$$

$$39$$

Therefore required number = $9999 - 39 = 9960$

Hence, 9960 is the largest four-digit number which is exactly divisible by 83.

27. $(47)^{25} - 1$ is exactly divisible by:

- (a) 21 (b) 24
 (c) 23 (d) 19

RRB NTPC 18.01.2021 (Shift-I) Stage Ist

Ans. (c) : $(47)^{25} - 1$

$a^n - b^n$ is completely divisible by $(a - b)$

When $n =$ odd numbers,

As per the question

$n = 25 \dots\dots$ (Odd number)

$$a = 47, b = 1$$

Then,

$$a - b = 47 - 1 = 46 = 2 \times 23$$

Hence, $47^{25} - 1$ is divisible by 23.

28. If $111 \dots 1$ (n digits) is divisible by 9, then the least value of n is:

- (a) 18 (b) 12
 (c) 3 (d) 9

RRB NTPC 18.01.2021 (Shift-I) Stage Ist

Ans. (d) : When the sum of all the digits of a number is divisible by 9, then number will be divisible by 9.

Given number–

- 111.....1 (n digits)
- When n = 1, number is 1, which is not divisible by 9.
- When n = 2, number is 11, which is a prime number and thus not divisible by 9.
- When n = 3, number is 111 and 1+1+1=3, which is not divisible by 9.

⋮

- When n = 9, number is 111111111 and 1+1+1+1+1+1+1+1+1=9, which is divisible by 9

Hence, the least possible value of n is 9.

29. A number when divided by 280 leaves 73 as the remainder. When the same number is divided by 35, the remainder will be:
- (a) 4 (b) 2
(c) 3 (d) 7

RRB NTPC 16.01.2021 (Shift-I) Stage Ist

Ans. (c) : Let number = N

$$N = 280K + 73$$

$$= (35 \times 8)K + 70 + 3$$

$$= 35(8K + 2) + 3$$

$$N = 35m + 3 \dots (i) \quad (\text{where, } m = 8K + 2)$$

$$\text{or } N = 35q + r \dots (ii)$$

On comparing both equation,

$$r = 3$$

Hence, on dividing the same numbers by 35 the remainder will be 3.

30. The least number that is divisible by all the numbers from 2 to 10 is–
- (a) 2520 (b) 100
(c) 504 (d) 9

RRB NTPC 10.01.2021 (Shift-I) Stage Ist

Ans. (a) : Required number = LCM of 2, 3, 4, 5, 6, 7, 8, 9, 10

$$= 2, 3, (2 \times 2), 5, (2 \times 3), 7, (2 \times 2 \times 2), (3 \times 3) \times (2 \times 5)$$

$$= 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 7 = 2520$$

31. How many numbers greater than 2 and less than 30 are divisible by 1 and themselves
- (a) 9 (b) 29
(c) 27 (d) 11

RRB NTPC 10.01.2021 (Shift-I) Stage Ist

Ans. (a) : Prime number-The numbers which is only divisible by 1 and itself are known as prime number. The prime numbers greater than 2 and less than 30 are–

$$= 3, 5, 7, 11, 13, 17, 19, 23, 29 = \text{Total 9 numbers}$$

Hence, the required number = 9

32. $3^{71} + 3^{72} + 3^{73} + 3^{74} + 3^{75}$ is divisible by:
- (a) 8 (b) 5
(c) 11 (d) 7

RRB NTPC 08.01.2021 (Shift-II) Stage Ist

$$\text{Ans. (c) : } 3^{71} + 3^{72} + 3^{73} + 3^{74} + 3^{75}$$

$$= 3^{71}(3^0 + 3^1 + 3^2 + 3^3 + 3^4)$$

$$= 3^{71}(1 + 3 + 9 + 27 + 81)$$

$$= 3^{71} \times 121$$

$$= 3^{71} \times 11^2$$

Hence, given series will be divisible by 11.

33. The smallest 5 digit number that leaves a remainder of 6 when divided by 7 is :
- (a) 10009 (b) 10002
(c) 10003 (d) 10007

RRB NTPC 28.12.2020 (Shift-I) Stage Ist

Ans. (b) : Smallest number of 5 digits = 10000

$$\begin{array}{r} 10000 \\ 7 \overline{) } \\ \underline{7 } \\ 3 \\ 30 \\ 30 \\ 0 \end{array} \quad \text{Remainder}=4$$

$$\text{Required number} = 10000 + (6 - 4) = 10002$$

34. N is a whole number which when, divided by 6 leaves the remainder 4. Find the remainder when 2N is divided by 6.
- (a) 4 (b) 8
(c) 2 (d) Zero

RRB NTPC 28.04.2016 Shift : 1

Ans : (c) Let the quotient be “a” when N is divided by 6.

$$\therefore N = 6a + 4 \dots (i)$$

By equation (i) $\times 2$,

$$2N = 2 \times 6a + 8$$

$$2N = 12a + 6 + 2$$

$$2N = 6(2a + 1) + 2$$

Hence, the required remainder will be 2.

35. Find the largest number of four digit that is completely divisible by 49.
- (a) 9998 (b) 9994
(c) 9992 (d) 9996

RRB RPF-SI -10/01/2019 (Shift-II)
RRB Group-D – 18/09/2018 (Shift-II)

Ans : (d) The largest 4-digit number is 9999.

$$49)9999(204$$

$$\underline{98}$$

$$199$$

$$\underline{196}$$

$$3$$

Hence, the required number = 9999-3 = 9996, which is exactly divisible by 49.

36. What should be added to 135642 to get the largest six digit number?
- (a) 864350 (b) 863357
(c) 864357 (d) 864347

RRB Group-D – 29/10/2018 (Shift-III)

Ans : (c) Let the required number is x.

Adding x to 135642 to get a largest six digit number

$$\therefore 135642 + x = 999999$$

$$x = 999999 - 135642$$

$$x = 864357$$

37. Find the smallest four digit number that is divisible by 47.
- (a) 1200 (b) 1025
(c) 1034 (d) 1360

RRB Group-D – 22/09/2018 (Shift-III)

Ans. (c) : The smallest four digit number = 1000

$$\begin{array}{r} 21 \\ 47 \overline{)1000} \\ \underline{94} \\ 60 \\ \underline{47} \\ 13 \end{array}$$

Hence, the smallest four digit number divisible by 47,
= 1000 + (47-13) 1000+34 = 1034

38. Find the least 6 digit number that is a multiple of 18.

- (a) 100000 (b) 999900
(c) 100008 (d) 100006

RRB NTPC 29.04.2016 Shift : 1

Ans : (c) The smallest 6 digit number = 100000

$$\begin{array}{r} 5555 \\ 18 \overline{)100000} \\ \underline{90} \\ 100 \\ \underline{90} \\ 100 \\ \underline{90} \\ 100 \\ \underline{90} \\ 10 \end{array}$$

The remainder is 10, hence 18 - 10 = 8 is added to the number will make it completely divisible.
Hence, the required number = 100000 + 8 = 100008

39. A student divided a number by 12 instead of 21 and received 35. Find the correct answer.

- (a) 20 (b) 15 (c) 26 (d) 25

RRB JE - 26/05/2019 (Shift-II)

Ans : (a) Let the number be x.
According to the question,
On dividing by 12,

$$\frac{x}{12} = 35 \\ x = 35 \times 12 \\ x = 420$$

The number is 420
Dividing 420 by 21-

$$\frac{420}{21} = 20$$

Hence, the correct answer = 20

40. Find the least number to be added to 231228 to make it exactly divisible by 33.

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

RRB JE - 27/05/2019 (Shift-III)

Ans : (a) From question,

$$\begin{array}{r} 7006 \\ 33 \overline{)231228} \\ \underline{231} \\ \times \times \times 228 \\ \underline{198} \\ 30 \end{array}$$

Hence, the required number = 33 - 30 = 3

41. Which of the following numbers is not divisible by 8?

- (a) 12676 (b) 11504
(c) 12832 (d) 12360

RRB RPF Constable -24/01/2019 (Shift-II)

Ans : (a) From options,

(a) $\frac{12676}{8} = 1584.5$

(b) $\frac{11504}{8} = 1438$

(c) $\frac{12832}{8} = 1604$

(d) $\frac{12360}{8} = 1545$

Hence, the number 12676 is not divisible by 8.

42. 276x1, is divisible by 3. What is the sum of the possible values of x?

- (a) 18 (b) 21
(c) 12 (d) 15

RRB RPF SI-12/01/2019 (Shift-I)

Ans. (d) If the sum of all digits of a number is divisible by 3, then the number will be divisible by 3.

276x1, is divisible by 3.

$$2 + 7 + 6 + x + 1 = 16 + x$$

The number will be completely divisible by 3, by putting the possible values of x as 2, 8, and 5.

Hence, the sum of the possible values of x = 2+8+5 = 15

43. By dividing 14528 by a certain number, Suresh gets 83 as quotient and 3 as remainder. What is the divisor?

- (a) 165 (b) 185 (c) 195 (d) 175

RRB RPF SI -06/01/2019 (Shift-III)

Ans : (d) Let the divisor is 'x'.

Given- Dividend = 14528

Quotient = 83

Remainder = 3

$$\text{Dividend} = (\text{Divisor} \times \text{Quotient} + \text{Remainder})$$

$$\Rightarrow 14528 = (x \times 83) + 3$$

$$\Rightarrow 83x = 14528 - 3$$

$$\Rightarrow 83x = 14525$$

$$\Rightarrow x = \frac{14525}{83} \Rightarrow x = 175$$

44. If the number x4461 is divisible by 11, find the value of x.

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

RRB Group-D - 17/09/2018 (Shift-I)

Ans : (d) Rule of divisibility by 11-

If the difference between sum of digits at even places and the sum of digits at odd places of a number is 0 or is divisible by 11, then that number will also be divisible by 11.

The number - x 4 4 6 1

$$x + 4 + 1 - (4 + 6) = 0$$

$$x + 5 - 10 = 0$$

$$x = 5$$

45. Which number is divisible by 9?

- (a) 56112 (b) 89445
(c) 49653 (d) 58556

RRB Group-D - 03/10/2018 (Shift-II)

Ans : (c) If the sum of all the digits of a number is divisible by 9, the number will also be completely divisible by 9.
Hence, from options-
(a) The sum of the digits of 56112 = 15 (×)
(b) The sum of the digits of 89445 = 30 (×)
(c) The sum of the digits of 49653 = 27 (✓)
(d) The sum of the digits of 58556 = 29 (×)
Hence, the number divisible by 9 = 49653

46. Which of the following numbers is divisible by 6?
(a) 12378 (b) 12363
(c) 12370 (d) 12388

RRB Group-D – 05/12/2018 (Shift-I)

Ans : (a) Divisibility rule by 6 – If a given number is divisible by both 2 and 3 then the number will also be divisible by 6.

Divisibility rule by 2 – If the unit digit of a given number is divisible by 2, then the number will also be divisible by 2.

Divisibility rule by 3 – If the sum of all the digits of the number is divisible by 3, then the number will also be divisible by 3.

From option (a)- $1 + 2 + 3 + 7 + 8 = 21$

$$= \frac{21}{3} = 7$$

Hence, the number 12378 is divisible by 6.

47. Choose the missing digit 'x' from the options given for the number 987x54, so that the number is completely divisible by 6.
(a) 2 (b) 5 (c) 3 (d) 1

RRB Group-D – 18/09/2018 (Shift-I)

Ans. (c) : The given number will be divisible by 6 if it is divisible by 2 and 3.

Divisibility rule by 2 – If the unit digit of a number is divisible by 2, then the number will also be divisible by 2. The unit digit of given number is 4, which is divisible by 2.

Divisibility rule by 3 – If the sum of all the digits of the given number is divisible by 3, then the number will also be divisible by 3.

$$\Rightarrow \frac{9+8+7+x+5+4}{3} = \frac{33+x}{3}$$

From option (c) on putting $x = 3$

$$\frac{36}{3} = 12$$

Hence, the value of x will be 3.

48. What number should be deducted from 1265 to make it divisible by 29 exactly?
(a) 15 (b) 16 (c) 18 (d) 17

RRB NTPC 05.04.2016 Shift : 3

Ans : (c)

$$\begin{array}{r} 43 \\ 29 \overline{)1265} \\ \underline{116} \\ \times 105 \\ \underline{87} \\ 18 \end{array}$$

Hence, 18 should be subtracted from 1265 to make it completely divisible by 29.

49. Find the least number to be added to 1739 so that it is exactly divisible by 11.

- (a) 11 (b) 2
(c) 1 (d) 10

RRB NTPC 30.03.2016 Shift : 1

Ans : (d) To get the required number divide 1739 by 11 then subtract the remainder from the divisor.

$$\begin{array}{r} 158 \\ 11 \overline{)1739} \\ \underline{11} \\ \times 63 \\ \underline{55} \\ \times 89 \\ \underline{88} \\ \times 1 \end{array}$$

Hence, the required number will be $11 - 1 = 10$.

50. Find the remainder, when 3^{10} is divided by 7.

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

RRB NTPC 18.04.2016 Shift : 3

Ans : (a) $3^{10} = 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$
 $= 59049$

$$\therefore \begin{array}{r} 59049 \\ 7 \overline{)59049} \\ \underline{} \\ = 4 \text{ remainder} \end{array}$$

51. Which of the following numbers is divisible by 12?

- (a) 93412 (b) 63412
(c) 73412 (d) 83412

RRB ALP & Tec. (31-08-18 Shift-II)

Ans. (d) : The number which is divisible by 12, should be divisible by 3 and 4 also.

If the sum of all the digits of a number is divisible by 3, the number will also be divisible by 3.

If the last two digit of a number are divisible by 4, the number will also be divisible by 4.

From option (d),

Then $8+3+4+1+2 = 18$, Which is divisible by 3.

The last 2-digit of the number are 12, Which is also divisible by 4.

Hence, the number 83412 is divisible by 12.

52. Which of the following numbers is divisible by 9?

- (a) 56765 (b) 47862
(c) 54321 (d) 87654

RRB ALP & Tec. (30-08-18 Shift-III)

Ans : (b) If the sum of all the digits of a number is divisible by 9, the number will be divisible by 9.

Hence, from option (b),

$47862 \Rightarrow 4+7+8+6+2 = 27$, which is divisible by 9.

Hence option (b) will be true.

53. If $3x^2 + ax + 4$ is perfectly divisible by $x - 5$, then the value of a is:

- (a) - 12 (b) - 5
(c) - 15.8 (d) - 15.6

RRB ALP & Tec. (09-08-18 Shift-II)

Ans : (c) According to the question,

$$3x^2 + ax + 4 = 0 \text{ ----- (i)}$$

\therefore equation (i), is divisible by $(x-5)$

Hence,
 $\Rightarrow x - 5 = 0$
 $\Rightarrow x = 5$
 Putting the value of x in equation (i),
 $3(5)^2 + a \times 5 + 4 = 0$
 $75 + 5a + 4 = 0$
 $5a = -79$
 $a = -15.8$

54. The product of 4 consecutive numbers is always divisible by which of the following numbers?

- (a) 10 (b) 22 (c) 24 (d) 48

RRB RPF SI -05/01/2019 (Shift-I)

Ans : (c) Let 4 consecutive numbers are $n, (n+1), (n+2)$ and $(n+3)$ respectively.
 According to the question,
 The Product of four consecutive numbers
 $= n(n+1)(n+2)(n+3)$
 Where $n = 1, 2, 3, \dots$
 Putting $n = 1$,
 Product,
 $= 1(1+1)(1+2)(1+3)$
 $= 1 \times 2 \times 3 \times 4 = 24$
 Putting $n = 2$,
 Product of numbers,
 $= 2 \times 3 \times 4 \times 5 = 24 \times 5 = 120$
 Hence, the product of 4 consecutive numbers is always divisible by 24.

55. When the number $(5)^{501}$ is divided by 126 then the remainder will be?

- (a) 117 (b) 121
 (c) 89 (d) 125

RRB ALP CBT-2 Mec. & Diesel 21-01-2019 (Shift-I)

Ans. (d) :

$$= \frac{(5)^{501}}{126} = \frac{(5^3)^{167}}{126} = \frac{(-1)^{167}}{126}$$

$$= \frac{-1}{126}$$

 Remainder = 125

Type - 2

56. If each even digit is divided by 2 and 2 is added to each odd digit in the number 4723361, what will be the sum of the largest and the smallest digits thus formed?

- (a) 12 (b) 10 (c) 11 (d) 9

RRB GROUP-D - 11/10/2022 (Shift-I)

Ans. (b) : Given, 4723361
 According to the question,
 New number obtained by dividing each even digit by 2 and adding 2 to each odd digit.
 $\frac{4}{2}(7+2), \left(\frac{2}{2}\right)(3+2)(3+2), \frac{6}{2}(1+2) \Rightarrow 2915533$
 Hence Sum of largest digit and smallest digit = $9 + 1 = 10$

57. If 3 is added to each odd digit and 1 is subtracted from each even digit in the number 42514563, what will be difference between the highest and lowest digits thus formed?

- (a) 2 (b) 7
 (c) 5 (d) 8

RRB GROUP-D - 17/08/2022 (Shift-I)

Ans. (b) : Given number = 42514563
 According to the question, the number obtained by adding 3 to the odd digit and subtracting 1 from the even digit of the number is = 31843856
 Hence required difference = $8 - 1 = 7$

58. If 3 is added to each odd digit and 2 is subtracted from each even digit in the number 6452851, what will be difference between the largest and smallest digits thus formed?

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

RRB GROUP-D - 27/09/2022 (Shift-I)

Ans. (a) : The number obtained by adding 3 to the odd digit and subtracting 2 from the even digit of the number is

$$\begin{array}{r} 6\ 4\ 5\ 2\ 8\ 5\ 1 \\ -2\ -2\ +3\ -2\ -2\ +3\ +3 \\ \hline 4\ 2\ 8\ 0\ 6\ 8\ 4 \end{array}$$

 Hence the difference of largest and smallest digits
 $= 8 - 0 = 8$

59. If 1 is subtracted from each odd digit and 1 is added to each even digit in the number 92379654, what will be the sum of the digits which are second from the left and third from the right?

- (a) 6 (b) 8
 (c) 10 (d) 5

RRB GROUP-D - 18/09/2022 (Shift-II)

Ans. (c) : The number obtained by adding 1 to the even digit and subtracting 1 from the odd digit of the number is 92379654

$$\begin{array}{r} 9\ 2\ 3\ 7\ 9\ 6\ 5\ 4 \\ -1\ +1\ -1\ -1\ +1\ -1\ +1 \\ \hline 8\ 3\ 2\ 6\ 8\ 4\ 5 \end{array}$$

 So the required sum = $3 + 7 = 10$

60. The sum of the digits of a two-digit number is 12. The number obtained by interchanging its digits exceeds the given number by 18. The number is:

- (a) 76 (b) 67
 (c) 27 (d) 57

RRB GROUP-D - 16/09/2022 (Shift-II)

Ans. (d) : Let the two digit number be $10x + y$
 Number obtained by interchanging the digits = $10y + x$
 According to the question,
 $x + y = 12$ ----- (i)
 And, On reversing the digits,
 $(10y + x) - (10x + y) = 18$
 $y - x = 2$ ----- (ii)
 On adding eq. (i) and (ii)

$$x + y = 12$$

$$-x + y = 2$$

$$2y = 14$$

$$y = 7$$

$$x = 5$$

$$\text{Hence, number} = 10x + y = 10 \times 5 + 7 = 57$$

61. In a five digit number, the digit in the hundred's place is 2 and the digit in the unit's place is twice the digit in the hundred's place. The digit at thousands place is zero. The digit in the ten thousand's place is the sum of the digit in the hundred's place and the digit in the unit's place. The digit in the ten's place is the digit in the ten thousand's place minus 1. The number is:

- (a) 60234 (b) 60224
(c) 60254 (d) 60264

RRB NTPC 09.02.2021 (Shift-I) Stage Ist

Ans. (c) : Let us assume the number = abcde

As per question,

$$c = 2$$

$$e = 2 \times c$$

$$e = 2 \times 2$$

$$e = 4$$

$$b = 0$$

$$a = 2 + 4$$

$$a = 6$$

$$d = 6 - 1$$

$$d = 5$$

Putting all values, then the required number = 60254

62. What is the smallest four digit number formed by using the digits 3, 5, 0, 6?

- (a) 3056 (b) 0356
(c) 0536 (d) 3506

RRB NTPC 08.02.2021 (Shift-I) Stage Ist

Ans. (a) : The smallest four-digit number formed by 3, 5, 0, 6 = 3056

63. What is the smallest five-digit number formed by using the digits 2, 3, 4, 0, 5?

- (a) 23045 (b) 20435
(c) 02345 (d) 20345

RRB NTPC 04.02.2021 (Shift-I) Stage Ist

Ans. (d) : Largest 5 digit number = 99999

Smallest 5 digit number = 10000

The smallest five digit number that can be formed from the digits 2, 3, 4, 0, 5 is = 20345

64. Find sum of the smallest and the largest positive numbers of 6 digits which contains only digits 0, 4, 6 and each of these digits appears at least once.

- (a) 666444 (b) 604604
(c) 666666 (d) 1066646

RRB NTPC 09.02.2021 (Shift-II) Stage Ist

Ans. (d) : According to the question-

∴ Smallest 6 digit no = 400006

Greatest 6 digit no = 666640

∴ Required sum = 400006 + 666640 = 1066646

65. How many times is digit 3 comes in counting from 301 to 399?

- (a) 119 (b) 11
(c) 121 (d) 21

RRB NTPC 10.01.2021 (Shift-II) Stage Ist

Ans. (a) : In Counting from 301 to 399, the digit 3 comes a total of 119 times.

66. Find the two-digit number such that the sum of its digits is 8 and the digits of the number get reversed when 36 is added to it.

- (a) 71 (b) 35
(c) 62 (d) 26

RRB NTPC 15.02.2021 (Shift-II) Stage Ist

Ans. (d) : Let number = $10x + y$

According to the question,

$$x + y = 8 \quad \dots(i)$$

$$(10x + y) + 36 = 10y + x$$

$$9y - 9x = 36$$

$$y - x = 4 \quad \dots(ii)$$

On solving equation (i) and equation (ii)

$$x = 2$$

$$y = 6$$

$$\text{Hence, required number} = 10x + y = 10 \times 2 + 6 = 26$$

67. If the number 2893#\$ is divisible by 8 and 5, then one possible choice of the digits that come in the place of # and \$ can be:

- (a) 0, 2 (b) 2, 2
(c) 0, 0 (d) 2, 0

RRB NTPC 13.03.2021 (Shift-II) Stage Ist

Ans. (d) : Divisibility rule of '5' ⇒ if a number has '0' or '5' in its unit digit then it is completely divisible by 5.

Divisibility rule of '8' ⇒ if the last three digits of a given number are divisible by '8' then number will be always divisible by 8.

from option 'd'

On putting the value of # = 2 and \$ = 0

$$\frac{289320}{5} \Rightarrow 57864$$

$$\frac{289320}{8} \Rightarrow 36165$$

$$8$$

Hence, option (d) will be correct.

68. If the largest 4-digit number is subtracted from the smallest 6-digit number, then the remainder will be:

- (a) 90000 (b) 99991
(c) 80001 (d) 90001

RRB NTPC 04.02.2021 (Shift-II) Stage Ist

Ans. (d) : The smallest number of 6 - digit = 100000

The largest number of 4 - digit = 9999

Required number = 90001

69. How many significant digits are there to the right of the decimal point in the product of 95.75 and 0.02554?

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

RRB NTPC 11.02.2021 (Shift-I) Stage Ist

Ans. (d) : 95.75×0.02554
 $= 2.445455$

So the number obtained as the product of 95.75 and 0.0254 will have 6 significant digits to the right of the decimal point.

70. What is the value of the digits A and B?

$$BA \times B3 = 57A$$

- (a) A = 2, B = 4 (b) A = 3, B = 5
(c) A = 5, B = 2 (d) A = 5, B = 3

RRB NTPC 09.02.2021 (Shift-I) Stage Ist

Ans. (c) : From option (c) Putting the values of A and B in the equation.

$$\begin{aligned} A &= 5, B = 2 \\ BA \times B3 &= 57A \\ 25 \times 23 &= 575 \\ 575 &= 575 \end{aligned}$$

Hence, option (c) will be correct.

71. The difference between the greatest and the smallest six-digit numbers is:

- (a) 988888 (b) 999999
(c) 888888 (d) 899999

RRB NTPC 04.02.2021 (Shift-I) Stage Ist

Ans. (d) : The largest six digit number is 999999

The smallest six digit number is 100000

\therefore Required difference = 999999 - 100000 = 899999

72. The sum of the greatest and smallest numbers of six digits is:

- (a) 100000 (b) 199999
(c) 999999 (d) 1099999

RRB NTPC 08.02.2021 (Shift-I) Stage Ist

Ans. (d) : According to question,

$$\begin{aligned} \text{Greatest number of six-digit} &= 999999 \\ \text{Smallest number of six-digit} &= 100000 \\ \text{Hence required sum} &= 999999 + 100000 \\ &= 1099999 \end{aligned}$$

73. The least number consisting of five - digit which is divisible by 97 is x. What is the sum of the digits of x?

- (a) 13 (b) 15
(c) 17 (d) 16

RRB ALP CBT-2 Physics & Maths 21-01-2019 (Shift-III)

Ans. (c) : Minimum five - digit number = 10000

$$97 \overline{)10000(103}$$

$$\begin{array}{r} -97 \\ \hline 300 \end{array}$$

$$\begin{array}{r} -291 \\ \hline \times 9 \end{array}$$

Hence, five - digit number that is divisible by 97

$$x = 10000 + (97 - 9)$$

$$x = 10000 + 88$$

$$x = 10088$$

$$\text{Required sum} = 1 + 0 + 0 + 8 + 8$$

$$= 17$$

74. How many total tens digit in the calculation from series 1 to 99?

- (a) 98 (b) 90
(c) 99 (d) 100

RRB RPF Constable -17/01/2019 (Shift-II)

Ans. (b) The number of tens digit from 1 to 10 = 1

The number of tens digit from 11 to 90 = 80

The number of tens digit from 91 to 99 = 9

Hence, the total number of tens from series 1 to 99

$$= 1 + 80 + 9 = 90$$

75. Find two consecutive numbers where thrice the first number is more than twice the second number by 5.

- (a) 5 and 6 (b) 6 and 7
(c) 7 and 8 (d) 9 and 10

RRB NTPC 28.03.2016 Shift : 1

Ans. (c) Let the two consecutive numbers be x and x+1.

According to the question-

$$3x = 2(x+1) + 5$$

$$\Rightarrow 3x = 2x + 7$$

$$\Rightarrow x = 7$$

Hence, the required consecutive numbers will be 7 and 8.

76. How many times does the digit 2 come in place of tens in counting from 1 to 100?

- (a) 20 (b) 11
(c) 10 (d) 19

RRB NTPC 31.03.2016 Shift : 1

Ans. (c) From the digit come in place of tens in counting, 1 to 10 = 0 time

From 11 to 20 = 1 time

From 21 to 30 = 9 times

From 31 to 100 = 0 times

\therefore Total required number = 1 + 9 = 10

77. How many times does the digit 5 come in the counting from 1 to 100?

- (a) 21 (b) 22
(c) 20 (d) 19

RRB RPF SI-16/01/2019 (Shift-I)

Ans. (c) The total numbers in which 5 comes from 1 to 49 = 5

From 50 to 60, such number = 11

And from 61 to 100, such number = 4

Hence, total required number = 5 + 11 + 4 = 20

Type - 3

78. Find the total number of prime numbers less than 50.

- (a) 13 (b) 15
(c) 17 (d) 14

RRB Group-D 06/09/2022 (Shift-III)

Ans. (b) : Total number of prime number less than 50 is 15 which is as follows -

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

79. What is the positive difference between the sum of all prime numbers between 11 and 20 (both included) and the sum of all prime numbers between 30 and 50 (both included)?

- (a) 139 (b) 141
(c) 137 (d) 135

RRB GROUP-D - 15/09/2022 (Shift-III)

Ans. (a) : The sum of all prime numbers between 11 and 20 (both included) = (11 + 13 + 17 + 19) = 60

The sum of all prime number between 30 and 50 (both included) = (31 + 37 + 41 + 43 + 47) = 199

\therefore Required positive difference = 199 - 60 = 139

80. The greatest prime number less than 200 is:

- (a) 199 (b) 193
(c) 197 (d) 191

RRB NTPC 21.01.2021 (Shift-II) Stage Ist

Ans. (a) : The greatest prime number less than 200 is 199.

81. Which of the following numbers is prime?

- (a) 323 (b) 571
(c) 513 (d) 715

RRB NTPC 02.03.2021 (Shift-II) Stage Ist

Ans. (b) : According to option, 571 is a prime number. Whereas 323 is divisible by 17, 513 is divisible by 3 and 715 is divisible by 5.

82. Find the smallest three digit prime number?

- (a) 107 (b) 109
(c) 103 (d) 101

RRB NTPC 23.07.2021 (Shift-II) Stage Ist

Ans. (d) : The smallest three-digit prime number = 101

83. Which of the following pairs of numbers are co-prime?

- (a) 28, 81 (b) 12, 27
(c) 21, 56 (d) 36, 20

RRB NTPC 23.07.2021 (Shift-II) Stage Ist

Ans. (a) : Co-prime numbers are the numbers whose common factor is only 1. Hence, in the given option (28, 81) are co-prime numbers.

84. One-third of the sum of all the prime numbers greater than 5 but less than 18 is the square of:

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

RRB NTPC 08.04.2021 (Shift-I) Stage Ist

Ans. (d) : Prime numbers greater than 5 but smaller than 18 = 7, 11, 13, 17

According to the question-

$$= \frac{7+11+13+17}{3}$$

$$= \frac{48}{3} = 16 = (4)^2$$

Hence, required number = 4

85. Which of the following is a prime number?

- (a) 143 (b) 173
(c) 123 (d) 213

RRB NTPC 15.03.2021 (Shift-I) Stage Ist

Ans. (b) : Prime number are the numbers, which are only divisible by 1 and itself.

From the given options-

- (a) 143 is divisible by 11, so it is not a prime number.
(b) 173 is divisible by 1 and itself, so it is a prime number.
(c) 123 is divisible by 3, so it is not a prime number.
(d) 213 is divisible by 3, so it is not a prime number.

86. Find the sum of prime no. between 50 and 60.

- (a) 118 (b) 114
(c) 110 (d) 112

RRB NTPC 31.01.2021 (Shift-I) Stage Ist

Ans. (d) : The prime number between 50 and 60- 53 and 59

Required Sum = 53 + 59 = 112

87. Find the number of all prime numbers less than 55.

- (a) 18 (b) 17
(c) 16 (d) 15

RRB NTPC 30.12.2020 (Shift-I) Stage Ist

Ans. (c) : The number of all prime numbers less than 55 is 16

i.e. \Rightarrow (2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53)

88. The number of pairs of twin primes between 1 and 100 are:

- (a) 7 (b) 8
(c) 10 (d) 9

RRB NTPC 26.07.2021 (Shift-I) Stage Ist

Ans. (b) : The number of pairs of twin primes between 1 and 100 are 8.

The numbers are -

$\{(3,5),(5,7),(11,13),(17,19),(29,31),(41,43),(59,61),(71,73)\}$

Note- Twins prime numbers are that numbers whose difference is 2.

89. The number that has factors other than 1 and itself is called a number.

- (a) Prime Number (b) Composite Number
(c) Even Number (d) Odd Number

RRB NTPC 26.07.2021 (Shift-I) Stage Ist

Ans. (b) : Composite Number:- Numbers which have more than two factors.

Ex- 4, 6, 8 -----

Prime Number:- Numbers which have only two factor 1 and itself is called prime number.

90. Find the number of prime number less than 20.

- (a) 9 (b) 7
(c) 10 (d) 8

RRB NTPC 06.04.2021 (Shift-II) Stage Ist

Ans. (d) : Prime number less than 20.

2, 3, 5, 7, 11, 13, 17 and 19

Hence the number of prime number less than 20 = 8

91. Three prime number are arranged in descending order. If the product of the first two is 323 and that of the last two is 221, then what is the value of the biggest prime number?

- (a) 17 (b) 19
(c) 13 (d) 23

RRB NTPC 04.03.2021 (Shift-I) Stage Ist

Ans. (b) : Let the consecutive prime numbers are x, y and z in which x is biggest prime number.

According to the question,

$$x \times y = 323$$

Taking

$$x = 19$$

$$y = 17$$

$$19 \times 17 = 323$$

Taking y = 17 and z = 13

And $17 \times 13 = 221$

So, the biggest prime number is = $\boxed{19}$

92. How many of the integers between 109 and 121, both inclusive, are prime numbers?

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

RRB NTPC 08.02.2021 (Shift-I) Stage Ist

Ans. (c) : Two integers (109, 113) between 109 and 121 both inclusive are prime numbers.

93. Which of the following numbers is prime?

- (a) 263 (b) 243
(c) 253 (d) 273

RRB RPF Constable -17/01/2019 (Shift-III)

Ans : (a) To identify a prime number, compare the given number with its nearest square. For example option (a), 263 (Which is between the squares of 16 and 17)

$$16^2 = 256$$

$$17^2 = 289$$

Then, divide the given number by all the prime numbers below 16 and 17. If the number is not divisible by any number then it is a prime number.

⇒ 263 (is less than the square of 17)

Which is not divisible by 2,3,5,7, 11 and 13.

Hence, it is a prime number.

94. Find the largest two-digit prime number.

- (a) 93 (b) 89 (c) 91 (d) 97

RRB JE - 23/05/2019 (Shift-II)

Ans : (d) The number which is divisible by only 1 and itself is called prime number.

Hence, It is clear that the largest two digit prime number = 97

95. What will be the product of the smallest prime number (except 0) and any whole number?

- (a) Always 0
(b) Always 1
(c) Always even number
(d) Always odd number

RRB RPF Constable -20/01/2019 (Shift-II)

Ans : (c) The smallest prime number = 2, The result of the product of any whole number(except 0) and 2 is always an even number.

96. Find the sum of the prime numbers between 50 and 80.

- (a) 392 (b) 390
(c) 463 (d) 396

RRB RPF Constable -18/01/2019 (Shift-I)

Ans : (c) Sum of prime numbers between 50 and 80 = $53 + 59 + 61 + 67 + 71 + 73 + 79 = 463$

97. The sum of which four odd prime numbers is 34?

- (a) 1, 3, 5, 7 (b) 3, 5, 7, 9
(c) 3, 5, 11, 13 (d) 3, 7, 11, 13

RRB NTPC 04.04.2016 Shift : 2

Ans : (d) From option- (d)
 $3 + 7 + 11 + 13 = 34$

98. In a prime number.....

- (a) There are more than two divisors.
(b) The number divided by itself and 1.
(c) It has no divisor.
(d) Is not a positive integer.

RRB NTPC 30.03.2016 Shift : 2

Ans : (b)
A prime number is divided by only itself and 1.

99. How many total prime numbers are in first 200 odd natural numbers?

- (a) 45 (b) 49 (c) 50 (d) 46

RRB Group 'D' 07/12/2018 (Shift-I)

Ans : (a) Total prime numbers in first 200 odd natural numbers = 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97, 101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199 = 45

100. Which of the following pairs are co-primes?

- (a) 348, 296 (b) 114, 213
(c) 59, 97 (d) 3025, 4920

RRB Group-D – 20/09/2018 (Shift-II)

Ans : (c) Such two numbers are called co-prime whose HCF is 1.

In option (c) 59, 97 is the appropriate co-prime pair in the alternatives.

101. Which of the following numbers is divisible?

- (a) 719 (b) 709
(c) 729 (d) 739

RRB Group-D – 20/09/2018 (Shift-I)

Ans. (c) The number- 729 is divisible by 3, 9 and 81.

102. How many prime numbers are in first 100 natural numbers?

- (a) 25 (b) 27
(c) 24 (d) 26

RRB Group-D – 26/11/2018 (Shift-III)

Ans : (a) Prime numbers in first 100 natural numbers = 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

Therefore, total such numbers are 25.

103. Find out which of the following sets form co-prime numbers.

- (a) (12, 7) (b) (21, 42)
(c) (3, 9) (d) (43, 129)

RRB NTPC 18.01.2017 Shift : 1

Ans : (a) Co-prime numbers- The set of two such numbers whose HCF is 1, is called co-prime numbers.

∴ In option (a), HCF of the numbers (12, 7) = 1

104. Which of the following is an odd composite number?

- (a) 13 (b) 17
(c) 12 (d) 15

RRB NTPC 18.01.2017 Shift : 2

Ans : (d) In the given options odd composite number will be 15.

105. Find the sum of first 8 odd prime numbers.

- (a) 77 (b) 98
(c) 75 (d) 100

RRB NTPC 19.04.2016 Shift : 2

Ans : (b) First 8 odd prime numbers = 3, 5, 7, 11, 13, 17, 19, 23

Sum of the numbers = $3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 = 98$

106. How many prime numbers are between positive integers 60 and 100?

- (a) 9 (b) 6
(c) 7 (d) 8

RRB NTPC 06.04.2016 Shift : 1

Ans : (d) The prime numbers between 60 and 100 = 61, 67, 71, 73, 79, 83, 89, 97

Hence, Total 8 prime numbers will be between 60 and 100.

107. Which of the following numbers is a prime number?

- (a) 121 (b) 141
(c) 181 (d) 161

RRB ALP & Tec. (21-08-18 Shift-II)

Ans : (c) Prime numbers are divisible by 1 and itself only.

Example:- 5,11,13,19

From options,
Factors of the numbers,
181 = 1, 181
121 = 1, 11, 121
141 = 1, 3, 47, 141
161 = 1, 7, 23, 161
Hence from the above it is clear that '181' is a prime number.

108. Which of the following pairs is NOT a pair of twin primes?

- (a) 11, 13 (b) 71, 73
(c) 131, 133 (d) 191, 193

RRB ALP & Tec. (21-08-18 Shift-II)

Ans : (c) From option (c),
Factor of 131 = 131, 1 and
Factors of 133 = 1, 7, 19, 133.
Hence, this pair is not a pair of twin primes.

109. Which of the following is the prime number series from 1 to 20?

- (a) 3, 5, 7, 11, 13, 17, 19
(b) 2, 5, 7, 9, 11, 13, 17, 19
(c) 2, 3, 5, 7, 11, 13, 17, 19
(d) 1, 2, 3, 5, 7, 11, 13, 17, 19

RRB ALP & Tec. (20-08-18 Shift-I)

Ans : (c) Prime numbers:- The number which is divisible by 1 and itself only.
Hence, from options, the required series will be 2, 3, 5, 7, 11, 13, 17, 19.

110. Calculate the difference between the largest and the smallest two-digit prime number.

- (a) 82 (b) 83
(c) 84 (d) 86

RRB RPF Constable -17/01/2019 (Shift-I)

Ans : (d) The largest two digit prime number = 97
The smallest two digit prime number = 11
Hence, the required number = 97 - 11 = 86

111. Which of the following number is not composite?

- (a) 209 (b) 203
(c) 161 (d) 109

RRB ALP & Tec. (14-08-18 Shift-I)

Ans : (d) The number is called composite number, which is formed by multiplying whole numbers.

Hence, 209 = 11 × 19
203 = 7 × 29
161 = 7 × 23

But, 109 cannot be expressed in the form of factors (except 1). So it is not composite.

Type - 4

112. If each packet contains the same number of pencils and there are 96 pencils in all in 12 packets, how many packets will one have to purchase if one requires 304 pencils?

- (a) 39 (b) 38
(c) 33 (d) 36

RRB NTPC (Stage-II) -16/06/2022 (Shift-II)

Ans. (b) : ∵ Pencils present in 12 packets = 96
∴ Pencils present in 1 packet = $\frac{96}{12} = 8$ Pencils

Number of packets required for 304 pencils
 $= \frac{304}{8} = 38$ Packets.

113. From $\frac{3}{4}$ of a number P, Ramakrishna subtracts $\frac{2}{3}$ of another number Q and obtain $\frac{5}{8}$ as the difference. What is the answer Ramakrishna should obtain if he subtracts eight times of Q from nine times of P?

- (a) $\frac{15}{2}$ (b) $\frac{25}{4}$
(c) $\frac{20}{3}$ (d) $\frac{25}{3}$

RRB NTPC (Stage-II) -12/06/2022 (Shift-II)

Ans. (a) : According to the question,

$$P \times \frac{3}{4} - Q \times \frac{2}{3} = \frac{5}{8}$$

$$\Rightarrow \frac{3P}{4} - \frac{2Q}{3} = \frac{5}{8} \Rightarrow \frac{9P - 8Q}{12} = \frac{5}{8}$$

$$\Rightarrow 9P - 8Q = \left(\frac{5}{8}\right) \times 12 \Rightarrow 9P - 8Q = \frac{60}{8}$$

$$\therefore 9P - 8Q = \frac{15}{2}$$

114. In a class of 80 students $\frac{1}{10}$ of the class likes

chocolate D and $\frac{1}{20}$ of the class likes chocolate

E. What is the difference between the number of students who like chocolate D and the number of students who like chocolate E ?

- (a) 2 (b) 9
(c) 5 (d) 4

RRB NTPC (Stage-2) 17/06/2022 (Shift-I)

Ans. (d) : Students who likes chocolate D = $80 \times \frac{1}{10}$
 $= 8$

$$\text{Students who likes chocolate E} = 80 \times \frac{1}{20}$$

$$= 4$$

Hence the required difference = 8 - 4 = 4

115. Sunita won $\frac{3}{5}$ of the marbles that were there in the beginning of the game. Ravi won $\frac{2}{3}$ of the remaining marbles while Sunny won the remaining 60 marbles. How many marbles did Sunita Win?

- (a) 255 (b) 240
(c) 285 (d) 270

RRB NTPC (Stage-II) -12/06/2022 (Shift-I)

Ans. (d) : Let, number of marbles be x.

$$\text{Won by Sunita} = \frac{3x}{5}$$

$$\text{Number of remaining marbles} = x - \frac{3x}{5} = \frac{2x}{5}$$

$$\text{Won by Ravi} = \frac{2x}{5} \times \frac{2}{3} = \frac{4x}{15}$$

According to the question,

$$\frac{3x}{5} + \frac{4x}{15} + 60 = x$$

$$60 = x - \left(\frac{3x}{5} + \frac{4x}{15} \right)$$

$$60 = x - \frac{13x}{15}$$

$$\therefore \frac{2x}{15} = 60 \Rightarrow x = 450$$

$$\text{Number of marbles Won by Sunita} = 450 \times \frac{3}{5} = 270$$

116. The difference between two numbers is 18. If the difference between their squares is 360, find the larger number.

- (a) 18 (b) 15
(c) 19 (d) 16

RRB GROUP-D – 29/09/2022 (Shift-I)

Ans. (c) : Let the smaller number = y
and larger number = x

According to the question,

$$x - y = 18 \dots\dots (i)$$

$$x^2 - y^2 = 360$$

$$(x + y)(x - y) = 360$$

$$(x + y) 18 = 360$$

$$x + y = 20 \dots\dots(ii)$$

On adding equation (i) and equation (ii) -

$$x + y = 20$$

$$x - y = 18$$

$$2x = 38$$

$$x = 19$$

$$y = 20 - x$$

$$= 20 - 19$$

$$= 1$$

Hence larger number = 19 and smaller number = 1

117. A 91 cm long wire is cut into two pieces so that the length of one piece is three-fourth of the other. Find the length of the shorter piece.

- (a) 36.23 m (b) 39 cm
(c) 42.17 cm (d) 38 cm

RRB Group-D 22/08/2022 (Shift-I)

Ans. (b) : Let the length of second piece = x cm

$$\text{Length of first piece} = x \times \frac{3}{4} = \frac{3x}{4}$$

According to the question,

$$\Rightarrow \frac{3x}{4} + x = 91$$

$$\Rightarrow 7x = 91 \times 4$$

$$\Rightarrow x = \frac{91 \times 4}{7}$$

$$\text{length of second piece (x)} = 52 \text{ cm}$$

$$\text{Length of first piece} = 52 \times \frac{3}{4}$$

$$= 39 \text{ cm}$$

Hence the length of the shorter piece = 39 cm

118. A 3 digit number is such that the ratio of its units digit, tens digit and hundreds digit is 1 : 2 : 3. The sum of this number and the reversed number obtained by reversing the order of its digits is 1332. Find the number.

- (a) 246 (b) 414
(c) 123 (d) 369

RRB Group-D 26/08/2022 (Shift-III)

Ans. (d) :

$$\begin{aligned} \text{Let three digit number} &= 100 \times 3x + 10 \times 2x + x \\ &= 300x + 20x + x \\ &= 321x \end{aligned}$$

New number obtained by reversing the digits

$$\begin{aligned} &= 100 \times x + 10 \times 2x + 3x \\ &= 100x + 20x + 3x \\ &= 123x \end{aligned}$$

According to the question,

$$321x + 123x = 1332$$

$$444x = 1332$$

$$x = 3$$

$$\text{Hence number} = 100 \times 3 + 10 \times 2 \times 3 + 3 \times 3$$

$$= 300 + 60 + 9$$

$$= 369$$

119. A man plants 21,025 mango trees in his garden in such a way that there are as many rows as there are mango trees in each row. Find the number of rows.

- (a) 135 (b) 125
(c) 145 (d) 130

RRB Group-D 30/08/2022 (Shift-II)

Ans. (c) : Let the number of rows in garden = x

And number of tree in each row = x

According to the question,

$$x \times x = 21025$$

$$x = \sqrt{21025}$$

$$x = 145$$

Hence, Number of rows in garden = 145

120. The sum of two numbers is 27. Five times one number is equal to 4 times the other. The smaller of the two numbers is :

- (a) 12 (b) 11 (c) 13 (d) 15

RRB Group-D 30/08/2022 (Shift-II)

Ans. (a) : Let the numbers be x and y

According to the question :

$$\therefore \rightarrow x + y = 27 \text{ —————(i)}$$

$$\therefore \rightarrow 5x = 4y$$

$$5x - 4y = 0 \text{ —————(ii)}$$

On solving equation (i) and (ii) :

$$y = 15$$

$$x = 12$$

Hence, the smaller number is 12.

121. There are two consecutive natural numbers such that the sum of their squares is 313. Find smaller of these two numbers.

- (a) 12 (b) 14 (c) 15 (d) 13

RRB Group-D 24/08/2022 (Shift-I)

Ans. (a) :
 Let two consecutive natural numbers are x and $(x + 1)$
 According to the question.
 $x^2 + (x + 1)^2 = 313$
 $x^2 + x^2 + 1 + 2x = 313$
 $2x^2 + 2x = 312$
 $x^2 + x = 156$
 $x(x + 1) = 13 \times 12$
 $\boxed{x = 12}$
 Hence, smaller of these two numbers = 12

122. In a competitive exam, 3 marks are to be awarded for every correct answer and for every wrong answer, 1 mark will be deducted. Sindhu scored 80 marks in this exam. Had 4 marks been awarded for each correct answer and 2 marks deducted for each incorrect answer. Sindhu would have scored 90 marks. If Sindhu attempted all the questions, then the number of questions in the test are :
 (a) 60 (b) 55
 (c) 70 (d) 50

RRB Group-D 09/09/2022 (Shift-I)

Ans. (a) : Let the correct question = x
 incorrect question = y
 According to the question,
 $3x - y = 80$ (i)
 $4x - 2y = 90$ (ii)
 On multiplying by 4 in equation (i) and 3 in eq. (ii)
 $12x - 4y = 320$ (iii)
 $12x - 6y = 270$ (iv)
 $\begin{array}{r} - \\ + \\ - \end{array}$ (on subtracting)
 $2y = 50$
 $y = 25$
 On putting the value of y in equation (i),
 $3x = 80 + 25$
 $x = \frac{105}{3} = 35$
 Hence number of question in the test
 $(x+y) = 35 + 25$
 $= 60$

123. The cost of 2 tables and 3 chairs is ₹540, while that of 2 tables and 1 chair is ₹470. What is the cost of 5 chairs ?
 (a) ₹ 245 (b) ₹ 205
 (c) ₹ 175 (d) ₹ 185

RRB Group-D 01/09/2022 (Shift-III)

Ans. (c) : Let the cost by one table and chair be a and b respectively.
 According to the first condition,
 $2a + 3b = 540$ (i)
 According to the second condition,
 $2a + b = 470$ (ii)
 On subtracting equation (ii) from equation (i),
 $2a + 3b = 540$
 $2a + b = 470$
 $\begin{array}{r} - \\ - \\ - \end{array}$
 $2b = 70$

$b = \frac{70}{2}$
 $b = 35$
 Cost of one chair = ₹35
 So cost of 5 chairs = $5 \times 35 = ₹175$

124. The sum of two positive numbers is 45 and their difference is 19. What are the numbers?
 (a) 25, 20 (b) 32, 13
 (c) 30, 15 (d) 31, 15

RRB Group-D 01/09/2022 (Shift-III)

Ans. (b) : Let the numbers be x and y respectively
 According to the question,
 $x + y = 45$ (i)
 $x - y = 19$ (ii)
 On adding equation (i) and equation (ii),
 $2x = 64$
 $x = 64/2 = 32$
 On putting the value of x in equation (i),
 $32 + y = 45$
 $y = 45 - 32 = 13$
 Hence the numbers are 32 and 13.

125. Find the number whose $\frac{1}{3}$ rd part is 6 more than its $\frac{1}{5}$ th part.
 (a) 50 (b) 45 (c) 40 (d) 35

RRB Group-D 06/09/2022 (Shift-II)

Ans. (b) : Let the number be x .
 According to the question.
 $x \times \frac{1}{3} - x \times \frac{1}{5} = 6$
 $5x - 3x = 15 \times 6$
 $2x = 90$
 $x = 45$

126. The sum of two numbers is 32 and one of them exceeds the other by 18. Find the greater number.
 (a) 25 (b) 28 (c) 24 (d) 27

RRB Group-D 18/08/2022 (Shift-III)

Ans. (a) : Let the greater number = a
 and smaller number = b
 According to the question,
 $a + b = 32$ (i)
 $a - b = 18$ (ii)
 On adding eq. (i) and eq. (ii),
 $2a = 50$
 $a = 25$
 So,
 $b = 7$
 Hence the greater number is 25.

127. Three chairs and two tables cost Rs. 1,850. Five chairs and three tables cost Rs. 2,850. Find the cost of two chairs and two tables.
 (a) 700 (b) 1,700
 (c) 1,400 (d) 1,300

RRB Group-D 13/09/2022 (Shift-III)

Ans. (b) : Let the cost of chair and table be 'C' and 'T' respectively.

According to the question,

$$3C + 2T = 1850 \dots\dots (i)$$

$$5C + 3T = 2850 \dots\dots (ii)$$

On subtracting eq. (i) $\times 3$ from eq. (ii) $\times 2$ -

$$10C + 6T = 5700$$

$$\underline{9C + 6T = 5550}$$

$$C = ₹150$$

So, $T = ₹700$

Hence the cost of two chairs and two tables

$$= 150 \times 2 + 700 \times 2$$

$$= 300 + 1400$$

$$= ₹1700$$

- 128. A number is split into two parts such that one part is 14 more than the other, and the ratio of the two parts is 7 : 5. Find the number.**

- (a) 49 (b) 35 (c) 84 (d) 54

RRB GROUP - D – 29/09/2022 (Shift-II)

Ans. (c) :

Let number be x

First part = x + 14

Second part = x

According to the question,

$$\frac{x+14}{x} = \frac{7}{5}$$

$$5x + 70 = 7x$$

$$2x = 70$$

$$x = 35$$

- 129. If one-third of a number is 6 more than the number itself, then find the number.**

- (a) -7 (b) -6 (c) -5 (d) -9

RRB GROUP-D – 27/09/2022 (Shift-I)

Ans. (d) : Let the number be x.

According to the question,

$$\frac{x}{3} = x + 6$$

$$\frac{x}{3} - x = 6$$

$$\frac{-2x}{3} = 6$$

$$\boxed{x = -9}$$

- 130. Ujjwal has ₹5,250 in currency notes of denominations ₹50, ₹100 and ₹200. The number of notes of each denomination are equal. How many notes in total does Ujjwal have ?**

- (a) 30 (b) 45 (c) 60 (d) 15

RRB GROUP-D – 11/10/2022 (Shift-I)

Ans. (b) : Let Ujjwal have ₹ 3x notes because notes of each denomination are equal.

According to the question,

$$50x + 100x + 200x = 5250$$

$$350x = 5250$$

$$x = 15$$

\therefore Total number of notes = 3x

$$= 15 \times 3$$

$$= 45$$

- 131. If the sum of two numbers is 25 and the product is 136, then the sum of their cubes is :**

- (a) 5425 (b) 5524
(c) 4525 (d) 4524

RRB GROUP-D – 11/10/2022 (Shift-I)

Ans. (a) : Let the numbers be a and b respectively.

According to the question

$$a + b = 25$$

$$ab = 136$$

$$\therefore [a^3 + b^3 = (a+b)(a^2 + b^2 - ab)]$$

$$(a+b)^2 = (25)^2 \text{ (On squaring both side)}$$

$$a^2 + b^2 + 2ab = 625$$

$$a^2 + b^2 = 625 - 272$$

$$a^2 + b^2 = 353$$

$$a^3 + b^3 = 25 \times (353 - 136)$$

$$a^3 + b^3 = 25 \times 217$$

$$a^3 + b^3 = 5425$$

- 132. The product of two consecutive positive natural numbers is 72. The greater of the two numbers is:**

- (a) 12 (b) 24
(c) 9 (d) 8

RRB GROUP-D – 18/09/2022 (Shift-II)

Ans. (c) : Let the two consecutive positive natural number be x and (x + 1) respectively.

So, According to the question,

$$x(x + 1) = 72$$

$$x^2 + x - 72 = 0$$

$$x^2 + 9x - 8x - 72 = 0$$

$$(x + 9)(x - 8) = 0$$

$$\therefore \boxed{x = 8}$$

Hence the greater number = x + 1

$$\Rightarrow 8 + 1 = 9$$

- 133. The sum of two numbers is 20 and their difference is 16. The ratio of the larger number to the smaller number is:**

- (a) 1 : 9 (b) 11 : 2
(c) 2 : 11 (d) 9 : 1

RRB GROUP-D – 15/09/2022 (Shift-III)

Ans. (d) : Let the two numbers be x and y

According to the question,

$$x + y = 20 \dots\dots (i)$$

$$x - y = 16 \dots\dots (ii)$$

On adding eq. (i) and eq. (ii)

$$2x = 36$$

$$x = 18$$

$$\therefore y = 20 - 18 = 2$$

Hence the Required ratio = 18 : 2

$$= 9 : 1$$

- 134. Three chairs and two tables cost ₹7,000 and five chairs and three tables cost ₹11,000. What is the cost of four chairs and two tables ?**

- (a) ₹ 9,600 (b) ₹ 9,000
(c) ₹ 6,000 (d) ₹ 8,000

RRB Group-D 08/09/2022 (Shift-II)

Ans. (d) : Let the price of chair and table be x and y respectively.

According to the question,
 $3x + 2y = 7000$ (i)
 $5x + 3y = 11000$ (ii)
 On multiplying by 5 in eq. (i) and 3 in eq. (ii)
 $15x + 10y = 35000$
 $15x + 9y = 33000$ (On subtracting)

$$\begin{array}{r} 15x + 10y = 35000 \\ - (15x + 9y = 33000) \\ \hline y = 2000 \end{array}$$

 On putting the value of y in eq. (i) -
 $3x + 2 \times 2000 = 7000$
 $3x = 7000 - 4000$
 $x = ₹ 1000$
 \therefore Cost of four chairs and two tables
 $= 4 \times 1000 + 2 \times 2000$
 $= ₹ 8000$

135. Pragma invited male and females to her birthday party in the ratio of 7 : 6. If the number of males in the party were 56, then the total number of guests attending the party were?
 (a) 48 (b) 104
 (c) 108 (d) 112

RRB NTPC 07.01.2021 (Shift-II) Stage Ist

Ans. (b) : Let number of males = $7x$
 and, number of female = $6x$
 According to the question-
 $7x = 56$
 $x = 8$
 \therefore Total number of guests = $7x + 6x$
 $= 13x$
 $= 13 \times 8$
 $= 104$

136. What is the sum of the cube of the natural numbers from 1 to 10, both inclusive?
 (a) 3023 (b) 3025
 (c) 3024 (d) 3022

RRB NTPC 08.02.2021 (Shift-I) Stage Ist

Ans. (b) : The sum of the cube of the natural numbers from 1 to 10-
 $= 1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 + 7^3 + 8^3 + 9^3 + 10^3$
 $= \left(\frac{10 \times 11}{2}\right)^2 \left\{ \therefore \Sigma n^3 = \left[\frac{n(n+1)}{2}\right]^2 \right\}$
 $= \frac{100 \times 121}{4} = 3025$

137. The sum of two numbers is 40 and their product is 60. The sum of their reciprocals is:
 (a) $\frac{3}{4}$ (b) $\frac{3}{2}$
 (c) $\frac{2}{3}$ (d) $\frac{1}{2}$

RRB NTPC 04.02.2021 (Shift-I) Stage Ist

Ans. (c) : Let the two numbers are x and y
 According to the question,
 $x + y = 40$ (i)
 and $x \times y = 60$ (ii)

Sum of reciprocal of numbers = $\frac{1}{x} + \frac{1}{y} = \frac{x+y}{xy}$
 From equation (i) and (ii)
 $= \frac{40}{60} \Rightarrow \frac{2}{3}$

138. What is the sum of the cubes of the natural numbers from 5 to 14?
 (a) 10930 (b) 10925
 (c) 10935 (d) 10920

RRB NTPC 04.02.2021 (Shift-I) Stage Ist

Ans. (b): The sum of the cubes of natural number
 $= \left[\frac{n(n+1)}{2}\right]^2$
 Sum of cubes of all natural numbers from 5 to 14
 $= [\text{Sum of cubes of number 1 to 14}] - [\text{Sum of cubes of numbers 1 to 4}]$
 $= \left[\frac{14(14+1)}{2}\right]^2 - \left[\frac{4(4+1)}{2}\right]^2$
 $= (105)^2 - (10)^2$
 $= 11025 - 100 = 10925$

139. If the difference between squares of two consecutive positive odd integers is 56, then the two consecutive odd integers are.
 (a) 17,19 (b) 13,15
 (c) 11,13 (d) 15,17

RRB NTPC 07.01.2021 (Shift-I) Stage Ist

Ans. (b) : Suppose first odd number = a
 and, second consecutive odd number = a+2
 According to the question,
 $(a+2)^2 - (a)^2 = 56$
 $a^2 + 4 + 4a - a^2 = 56$
 $a = \frac{52}{4} = 13$
 First Number (a) = 13
 Second Number (a + 2) = 13+2 = 15

140. An orchard has 5776 trees and the arrangement of trees is such that there are as many rows as there are trees in a row. Then the number of rows is:
 (a) 48 (b) 76
 (c) 65 (d) 56

RRB NTPC 13.03.2021 (Shift-II) Stage Ist

Ans. (b) : Let the number of trees be X and the number of rows also X.
 According to the question,
 $X \times X = 5776$
 $X^2 = 5776$
 $X = 76$
 Hence, the number of rows (X) = 76

141. What is the sum of the squares of the numbers from 3 to 18?
 (a) 2103 (b) 2102
 (c) 2101 (d) 2104

RRB NTPC 09.02.2021 (Shift-II) Stage Ist

Ans. (d)
Sum of squares of the first 'n' terms = $\frac{n(2n+1)(n+1)}{6}$
Sum of squares of numbers from 3 to 18
 $= (1^2 + 2^2 + 3^2 + 4^2 + \dots + 18^2) - (1^2 + 2^2)$
 $= \frac{18(18 \times 2 + 1)(18 + 1)}{6} - 5$
 $= \frac{18 \times 37 \times 19}{6} - 5$
 $= 2109 - 5$
 $= 2104$

142. The sum of two numbers is 20 and their product is 96. What is the difference between the two numbers?

- (a) 4 (b) 5
(c) 6 (d) 8

RRB NTPC 08.02.2021 (Shift-II) Stage I

Ans. (a) : Let the two numbers are x and y.
According to the question,
 $x + y = 20$
 $xy = 96$
From, $x - y = \sqrt{(x + y)^2 - 4xy}$
 $= \sqrt{(20)^2 - 4 \times 96}$
 $= \sqrt{400 - 384}$
 $= \sqrt{16}$
 $= 4$

143. If the sum of two numbers is 30 and the product is 50, then the sum of their reciprocals is:

- (a) $\frac{3}{5}$ (b) $\frac{5}{3}$
(c) $\frac{2}{5}$ (d) $\frac{5}{2}$

RRB NTPC 29.01.2021 (Shift-II) Stage I

Ans. (a) : Let the numbers be x and y -
Given,
 $x + y = 30$ (i)
 $xy = 50$ (ii)
The sum of reciprocals of numbers
 $= \frac{1}{x} + \frac{1}{y} = \frac{x + y}{xy}$
 $= \frac{30}{50} = \frac{3}{5}$

144. The sum of two numbers is 25 and their difference is 15. The ratio of the numbers is?

- (a) 3:2 (b) 5:3
(c) 4:1 (d) 2:3

RRB NTPC 04.01.2021 (Shift-I) Stage Ist

Ans. (c) : Let the numbers be a and b.
According to the question,
 $a + b = 25$ (i)
 $a - b = 15$ (ii)

By equation (i) and (ii)
 $\Rightarrow a = \frac{25+15}{2} = 20$
 $b = \frac{25-15}{2} = 5$
Hence, the ratio of the numbers a : b = 20 : 5 = 4 : 1

145. The sum of two number is 16 and their product is 63. The sum of their reciprocal is equal to:

- (a) $\frac{16}{63}$ (b) $\frac{63}{16}$
(c) $\frac{8}{63}$ (d) $\frac{60}{63}$

RRB NTPC 04.01.2021 (Shift-I) Stage Ist

Ans. (a) : Let the numbers be x and y
According to the question,
 $x + y = 16$ (i)
and $x \times y = 63$ (ii)
then, $\frac{1}{x} + \frac{1}{y} = ?$
 $\frac{x + y}{xy} = \frac{16}{63}$

146. The difference between two numbers which are in the ratio 5 : 3 is 50. What is the product of the numbers?

- (a) 1035 (b) 9375
(c) 8575 (d) 9975

RRB NTPC 08.04.2021 (Shift-II) Stage Ist

Ans. (b) : Let the numbers are 5x, 3x
As per question,
 $5x - 3x = 50$
 $2x = 50$
 $x = 25$
Hence, the product of two numbers = $5x \times 3x = 15x^2$
 $= 15 \times 25^2 = 9375$

147. $\frac{3}{5}$ of a number is 10 more than half of the

second number. If 8 is subtracted from $\frac{3}{7}$ of the first number, then it becomes 4 less than half of the second number. What is the sum of the two numbers?

- (a) 56 (b) 57
(c) 54 (d) 55

RRB NTPC 08.04.2021 (Shift-II) Stage Ist

Ans. (b) : Let the no. be x and y
According to the question,
 $\frac{3}{5}x - \frac{y}{2} = 10$
 $6x - 5y = 100$ (i)
and $\frac{3}{7}x - 8 = \frac{y}{2} - 4$
 $6x - 7y = 56$ (ii)
On subtracting equation (ii) from equation(i)
 $2y = 44$
 $y = 22$
 $x = \frac{100 + 5 \times 22}{6} = 35$ {from equation (i)}
Hence, sum of two numbers = $x + y = 35 + 22 = 57$

148. The ratio of five numbers are 1:2:3:4:5 and their sum is 30. Find the sum of second and fifth number?

- (a) 15 (b) 14
(c) 13 (d) 12

RRB NTPC 05.04.2021 (Shift-II) Stage Ist

Ans. (b) : Let the number are $x, 2x, 3x, 4x, 5x$.
According to the question,
 $x+2x+3x+4x+5x=30$
 $15x=30 \Rightarrow x=2$
Then the sum of (second+fifth) number = $2x+5x=7x$
 $= 7 \times 2=14$

149. There are 2401 students in a school. The PT teacher wants all of them to stand in rows and columns. Find the number of rows, if the number of rows is equal to the number of columns.

- (a) 29 (b) 39
(c) 49 (d) 19

RRB NTPC 10.02.2021 (Shift-II) Stage Ist

Ans. (c) : Let number of Rows = x
then number of columns = x
Number of students in school = 2401.....(given)
 \therefore Number of rows \times Number of columns = 2401
 $\therefore x \times x = 2401$
 $x^2 = 2401$
 $x = 49$
Hence, the number of rows (x) = 49

150. The sum of two numbers is 27 and the difference of their squares is 243. What is the difference between the numbers?

- (a) 42 (b) 9
(c) 72 (d) 3

RRB NTPC 05.02.2021 (Shift-I) Stage Ist

Ans. (b) : let us the numbers be x and y respectively.
Given,
 $x + y = 27$(i)
 $x^2 - y^2 = 243$
 $(x-y)(x+y) = 243$(ii)
Putting value of $(x + y)$ from eqⁿ (i) in eq (ii),
 $(x-y) \times 27 = 243$
 $(x-y) = \frac{243}{27} = 9$
So, difference between the numbers = $x-y=9$

151. What is the sum of the squares of the numbers from 1 to 12?

- (a) 655 (b) 660
(c) 650 (d) 665

RRB NTPC 04.02.2021 (Shift-II) Stage Ist

Ans. (c) : $1^2 + 2^2 + 3^2 + \dots + 12^2$
From, Sum of the square of the first n natural numbers
 $= \frac{n(n+1)(2n+1)}{6}$
 $= \frac{12 \times 13 \times 25}{6} = 650$

152. Find the least number which must be added to the number 6412 to get a perfect square.

- (a) 149 (b) 129
(c) 181 (d) 150

RRB NTPC 12.01.2021 (Shift-II) Stage Ist

Ans. (a) : $(80)^2 = 6400$
 $(81)^2 = 6561$
Hence on adding $6561 - 6412 = 149$, 6412 will be the perfect square.

153. Out of four consecutive numbers, the sum of the first two numbers is equal to the fourth number. What is half of the sum of the four numbers.

- (a) 14 (b) 7
(c) 9 (d) 2

RRB NTPC 12.01.2021 (Shift-II) Stage Ist

Ans. (b) : Let four consecutive numbers be $x, (x + 1), (x + 2)$ and $(x + 3)$
According to question,
 $x + (x + 1) = x + 3$
 $x = 2$
Half of the sum of four number = $\frac{4x + 6}{2} = 2x + 3$
 $= 2 \times 2 + 3$
 $= 7$

154. 24 mango trees, 56 apple trees and 72 orange trees have to be planted in rows such that each row contains the same number of trees of one variety only. Find the minimum number of rows in which the above mentioned trees may be planted.

- (a) 15 (b) 18
(c) 17 (d) 19

RRB NTPC 04.01.2021 (Shift-II) Stage Ist

Ans. (d) :
(Number of total columns \times Number of total rows)
 8×3
 8×7
 8×9
 $8(3 + 7 + 9) =$ Total number of trees
Total number of rows = $3 + 7 + 9 = 19$

155. What is the sum of the cubes of the first four natural numbers?

- (a) 96 (b) 84
(c) 100 (d) 1000

RRB NTPC 23.07.2021 (Shift-I) Stage Ist

Ans. (c) : First four natural numbers—
 $\Rightarrow 1, 2, 3, 4$
Cube,
 $(1)^3 = 1$
 $(2)^3 = 8$
 $(3)^3 = 27$
 $(4)^3 = 64$
Sum of cubes of the first four natural numbers
 $= 1 + 8 + 27 + 64$
 $= 9 + 27 + 64$
 $= 36 + 64$
 $= 100$

156. $\frac{6}{11}$ of the people present in a hall are sitting in $\frac{9}{14}$ of the chairs available, and the rest are standing. If there are 30 empty chairs, how many people in the hall are standing?
 (a) 40 (b) 35
 (c) 30 (d) 45

RRB NTPC 23.07.2021 (Shift-I) Stage Ist

Ans. (d) : If number of total chair = x
 Then empty chair = $x - \frac{9x}{14} = \frac{5x}{14}$
 Whereas, $\frac{x \times 5}{14} = 30$
 $x = 84$ (Number of total chair)
 Hence, number of people sitting on the chair.
 $\Rightarrow 84 - 30 = 54$
 If total people are y then,
 $\frac{y \times 6}{11} = 54$
 or $y = 99$ people
 \therefore Number of standing people $y \left(1 - \frac{6}{11}\right) = y \times \frac{5}{11}$
 Hence, Number of standing people = $\frac{99 \times 5}{11} = 45$ people

157. One-fourth of one-eight of a number is 300. What is one fifth of the same number?
 (a) 1900 (b) 1910
 (c) 1920 (d) 1890

RRB NTPC 03.03.2021 (Shift-I) Stage Ist

Ans. (c) : Let the required number = x
 According to the question,
 $\left(x \times \frac{1}{8}\right) \times \frac{1}{4} = 300$
 $x = 300 \times 32 \Rightarrow x = 9600$
 Then, $9600 \times \frac{1}{5} = 1920$

158. Two-fifth of one-fourth of three-seventh of a number is 15. What is the half of that number?
 (a) 375 (b) 175
 (c) 300 (d) 170

RRB NTPC 09.02.2021 (Shift-I) Stage Ist

Ans. (b) : Let the number is x
 According to the question,
 $x \times \frac{3}{7} \times \frac{1}{4} \times \frac{2}{5} = 15$
 $x = 350$
 then, half of that number = $\frac{350}{2}$
 $= 175$

159. Instead of multiplying a number by 2, Rahul divided it by 2 and got the answer as 2. What should be the actual answer?
 (a) 4 (b) 8
 (c) 6 (d) 2

RRB NTPC 25.01.2021 (Shift-I) Stage Ist

Ans. (b) : Let the no. = x
 According to question,
 actual answer = 2x
 and from the question
 $\frac{x}{2} = 2$
 $x = 4$
 Actual answer = 2x
 $= 2 \times 4 = 8$

160. In a reunion of class XII, out of 45 students, 30 students participated in the function. If all present in the function shake hands with one other, find the total number of handshakes.
 (a) 870 (b) 435
 (c) 841 (d) 900

RRB NTPC 12.01.2021 (Shift-I) Stage Ist

Ans. (b) : Total number of handshakes
 $= \frac{n}{2}(n-1)$
 $= \frac{30}{2}(30-1)$
 $= 15 \times 29$
 $= 435$

161. The difference of two numbers is 5. If their product is 336, find the sum of the numbers.
 (a) 21 (b) 37
 (c) 28 (d) 51

RRB JE - 26/06/2019 (Shift-I)

Ans. (b) Let the numbers be x and y respectively.
 $x - y = 5$ (i)
 $xy = 336$ (ii)
 $(x + y)^2 = (x - y)^2 + 4xy$
 From equation (i) and (ii),
 $(x + y)^2 = (5)^2 + 4 \times 336$
 $(x + y)^2 = 25 + 1344$
 $(x + y)^2 = 1369$
 $(x + y) = \sqrt{1369}$
 $x + y = 37$
 Hence, the required sum of the numbers = 37

162. If $x + y = 11$, then $(-1)^x + (-1)^y$ is equal to (where x and y are whole numbers).
 (a) -1 (b) 1
 (c) 2 (d) 0

RRB JE - 23/05/2019 (Shift-I)

Ans : (d) Given –
 $x + y = 11$
 $(-1)^x + (-1)^y = ?$
 Note- When the sum of two whole numbers is an odd number then one will be even and second will be odd.
 Hence,
 $(-1)^{\text{even/odd}} + (-1)^{\text{odd/even}} = 0$

163. From a cloth of 30 m long, 12 pieces each measuring 225 cm are cut and sold. How much is left of the original length?
 (a) $\frac{1}{3}$ (b) $\frac{1}{9}$
 (c) $\frac{1}{10}$ (d) $\frac{3}{10}$

RRB JE - 23/05/2019 (Shift-III)

Ans : (c) The total length of the cloth = 30 m [1m = 100 cm] = 3000 cm

Total length of the cloth that is sold = $225 \times 12 = 2700$ cm
 The length of the remaining cloth = $3000 - 2700 = 300$ cm

$$\text{The remaining part} = \frac{300}{3000} = \frac{1}{10}$$

164. If $\frac{1}{7}$ of a number is subtracted from the number, the result is 30 less than the number. Find the number.

- (a) 105 (b) 140
 (c) 120 (d) 210

RRB JE - 24/05/2019 (Shift-III)

Ans : (d) Let the number be x.

$$x - \frac{x}{7} = x - 30$$

$$\frac{7x - x}{7} = x - 30$$

$$6x = 7x - 210$$

$$x = 210$$

165. If the product of two numbers is 24, and their square's sum is 52, then find their sum.

- (a) 5 (b) 10
 (c) 15 (d) 20

RRB RPF Constable -24/01/2019 (Shift-I)

Ans : (b) Let the numbers be x and y.

According to the question,

$$x \cdot y = 24 \dots\dots(1)$$

$$x^2 + y^2 = 52 \dots\dots(2)$$

$$\therefore (x + y)^2 = x^2 + y^2 + 2xy$$

$$= 52 + 2 \times 24$$

$$= 52 + 48 = 100$$

$$x + y = \sqrt{100} = 10$$

166. If 10 is subtracted from the 5 times of a number, then that number will be equal to the number found when adding 8 to 4 times of that number, what is that number?

- (a) 15 (b) 18
 (c) 22 (d) 21

RRB RPF Constable -25/01/2019 (Shift-III)

Ans. (b) : Let the number be x.

According to the question,

$$5x - 10 = 4x + 8$$

$$x = 18$$

Hence, the required number will be 18.

167. When 8 times of a number is added to 4, the result obtained is the smallest 3-digit number. What is that number?

- (a) 12 (b) 10
 (c) 15 (d) 8

RRB RPF Constable -22/01/2019 (Shift-II)

Ans : (a) Let the number be x,

\therefore The smallest 3-digit number = 100

According to the question,

$$8x + 4 = 100$$

$$8x = 96$$

$$x = \frac{96}{8} = 12$$

Hence, the required number will be 12.

168. The sum of two numbers is 22. Five times of one number is equal to 6 times the other. Find the larger of the two numbers.

- (a) 12 (b) 15
 (c) 10 (d) 16

RRB JE - 25/05/2019 (Shift-I)

Ans : (a) Let the numbers are x and y,

According to the question,

$$x + y = 22 \dots\dots(i)$$

$$\text{and } 5x = 6y \dots\dots(ii)$$

$$x = \frac{6}{5}y$$

Putting the value of x in equation (i) -

$$\frac{6}{5}y + y = 22$$

$$\frac{11}{5}y = 22$$

$$y = \frac{22 \times 5}{11} = 10$$

$$y = 10$$

$$\therefore x = \frac{6}{5} \times 10 = 12$$

Hence, the larger number is 12.

169. If doubling a number and adding 20 to the result gives the same answer as multiplying the number by 8 and subtracting 4 from the product, find the number.

- (a) 3 (b) 4
 (c) 6 (d) 2

RRB JE - 25/05/2019 (Shift-II)

Ans : (b) Let the number be = x

According to the question,

$$2x + 20 = x \times 8 - 4$$

$$2x + 20 = 8x - 4$$

$$24 = 6x$$

$$x = 4$$

170. The product of two numbers is 9375. The quotient, when the largest number is divided by the smallest number is 15. Find the sum of these numbers.

- (a) 400 (b) 380
 (c) 425 (d) 395

RRB JE - 30/05/2019 (Shift-II)

Ans : (a) Let the smaller number be = x

\therefore Larger number = $15x$

According to the question,

$$x \times 15x = 9375$$

$$15x^2 = 9375$$

$$x^2 = 625$$

$$x = 25 \text{ first number}$$

$\therefore 15x = 15 \times 25 = 375$ second number

Hence, the sum of the numbers = $375 + 25 = 400$

171. If $\frac{2}{3}$ rd of $\frac{1}{4}$ th of a number is 32. Find the number.

- (a) 202 (b) 198
 (c) 196 (d) 192

RRB RPF-SI -13/01/2019 (Shift-III)

Ans : (d) Let the number be x,

According to question,

$$x \times \frac{1}{4} \times \frac{2}{3} = 32$$

$$x = 32 \times 6 = 192$$

172. If the sum of two numbers is 13 and the sum of their squares is 97, what is their product?

- (a) 72 (b) 36
(c) 110 (d) 84

RRB JE - 28/06/2019 (Shift-III)

Ans. (b) Let both the numbers are X and Y.

Given,

$$x + y = 13, \text{ and } x^2 + y^2 = 97, \quad xy = ?$$

$$\therefore (x + y)^2 = x^2 + y^2 + 2xy \dots\dots (i)$$

On putting the values in equation (i),

$$(13)^2 = 97 + 2xy$$

$$169 = 97 + 2xy$$

$$2xy = 169 - 97$$

$$xy = \frac{72}{2}$$

$$xy = 36$$

173. Which of the fraction given below, when added

to $\frac{13}{5}$, gives 1?

- (a) $-\frac{48}{30}$ (b) $-\frac{7}{5}$
(c) $-\frac{28}{10}$ (d) $-\frac{8}{15}$

RRB Group-D - 19/09/2018 (Shift-II)

Ans. (a) : Let the fraction be x.

According to the question,

$$x + \frac{13}{5} = 1$$

$$x = 1 - \frac{13}{5}$$

$$x = \frac{-8}{5}$$

$$\text{or, } x = \frac{-8 \times 6}{5 \times 6} = \frac{-48}{30}$$

174. Shalini, Tanvir and Rashid shared a cake.

Shalini had $\frac{1}{6}$ part of it, Tanvir had $\frac{1}{4}$ part of

it and Rashid had the remaining part. What was fraction of Rashid's cake?

- (a) $\frac{5}{6}$ (b) $\frac{3}{5}$
(c) $\frac{13}{15}$ (d) $\frac{7}{12}$

RRB Group-D - 31/10/2018 (Shift-II)

Ans : (d) Shalini's share of the cake = $\frac{1}{6}$ part

Tanvir's share of the cake = $\frac{1}{4}$ part

Total share of Shalini and Tanvir's cake

$$= \frac{1}{6} + \frac{1}{4} = \frac{2+3}{12} = \frac{5}{12}$$

Hence, Rashid's share of the cake = $1 - \frac{5}{12} = \frac{7}{12}$ part

175. The sum of two numbers is 9. The sum of their reciprocals is $\frac{1}{2}$. One of the number is.

- (a) 2 (b) 4
(c) 5 (d) 6

RRB Group-D - 17/09/2018 (Shift-III)

Ans. (d) : Let the first number be x and the second number be y.

According to the question,

$$x + y = 9 \dots\dots(i)$$

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{2} \dots\dots (ii)$$

From equation (i),

$$x + y = 9$$

$$y = 9 - x$$

From equation (ii)

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{2}$$

$$\frac{x+y}{xy} = \frac{1}{2}$$

$$\frac{9 \times 2}{xy} = 1$$

$$2 \times 9 = xy$$

On putting the value of y,

$$18 = x(9 - x)$$

$$18 = 9x - x^2$$

$$x^2 - 9x + 18 = 0$$

$$x^2 - 6x - 3x + 18 = 0$$

$$x(x - 6) - 3(x - 6) = 0$$

$$(x - 3)(x - 6) = 0$$

$$(x - 3) = 0 \text{ or } x = 3$$

$$(x - 6) = 0 \text{ or } x = 6$$

176. If the sum of two numbers is 26 and their difference is 12. Find the difference of their squares.

- (a) 296 (b) 312
(c) 324 (d) 336

RRB NTPC 05.04.2016 Shift : 2

Ans : (b) Let the numbers be x and y.

$$x + y = 26$$

$$x - y = 12$$

\therefore The difference of the squares,

$$= x^2 - y^2$$

$$= (x + y)(x - y)$$

$$= 26 \times 12 = 312$$

177. If the product of two numbers is thrice of their sum, if 1st number is 12 find the 2nd number.

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

RRB NTPC 04.04.2016 Shift : 1

Ans : (c) Let the 2nd number be x.

$$x \times 12 = (x + 12) \times 3$$

$$12x = 3x + 36$$

$$9x = 36$$

Hence, $x = 4$

178. Two partners M and N buy a car. M pays his share of $\frac{3}{7}$ th of the total cost of the car. M pays ₹31,540 less as compared to N. What is the cost of the car?

- (a) ₹2,32,680 (b) ₹2,03,175
(c) ₹2,20,780 (d) ₹1,85,780

RRB ALP & Tec. (31-08-18 Shift-III)

Ans : (c) Let the cost of the car is ₹ x
According to the question,

$$M's \text{ share} = \frac{3x}{7}$$

$$N's \text{ share} = \frac{3x}{7} + 31540$$

Then, $\frac{3x}{7} + 31540 + \frac{3x}{7} = x$

$$x = 31540 \times 7$$

$$x = ₹2,20,780$$

179. If $\frac{2}{3}$ part of a pizza costs ₹ 300, then $\frac{3}{5}$ part of a pizza will cost:

- (a) ₹180 (b) ₹250
(c) ₹225 (d) ₹270

RRB ALP & Tec. (30-08-18 Shift-I)

Ans : (d) The cost of $\frac{2}{3}$ part of the pizza = ₹300

Then, the cost of 1 share of the pizza = $\frac{300 \times 3}{2} = ₹450$

The cost of $\frac{3}{5}$ th share of the pizza = $450 \times \frac{3}{5}$
= $90 \times 3 = ₹270$

180. When 472 pieces of plywood, each 0.23 cm thick, are placed on top of each other, what would be the height of the pillar in metre?
(a) 10.856 (b) 1.0856
(c) 108.56 (d) 1.856

RRB ALP & Tec. (29-08-18 Shift-III)

Ans : (b) The required height of the pillar,
$$= \frac{0.23 \times 472}{100} = 1.0856 \text{ metre}$$

181. 15 small rods, each of length $23\frac{2}{7}$ m are joined to make a big rod. What is the length of the big rod?

- (a) $349\frac{3}{7}$ m (b) $349\frac{1}{7}$ m
(c) $349\frac{2}{7}$ m (d) $349\frac{5}{7}$ m

RRB ALP & Tec. (21-08-18 Shift-I)

Ans : (c) The length of each rod = $23\frac{2}{7} = \frac{163}{7}$ m

In this way, the length of big rod = $15 \times \frac{163}{7}$
$$= \frac{2445}{7} = 349\frac{2}{7} \text{ m}$$

182. Find the smallest four digit number which is a perfect square.
(a) 1000 (b) 1024
(c) 1081 (d) 1064

RRB NTPC 04.04.2016 Shift : 1

Ans : (b) The smallest 4 digit number = 1000

$$\begin{array}{r} 32 \\ 3 \overline{) 1000} \\ \underline{+3} \\ 62 \\ \underline{2} \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

Hence, the smallest 4 digit perfect square number = $1000 + 24 = 1024$

183. A number when multiplied by $\frac{6}{5}$ gives $\frac{108}{125}$.

The number is:

- (a) $\frac{625}{648}$ (b) $\frac{648}{625}$
(c) $\frac{18}{25}$ (d) $\frac{25}{18}$

RRB NTPC 15.03.2021 (Shift-II) Stage I

Ans. (c) : Let the number = x

As per question

$$x \times \frac{6}{5} = \frac{108}{125} \text{ or } x = \frac{108 \times 5}{6 \times 125}$$

$$\Rightarrow x = \frac{18}{25}$$

184. Four fifths of a number is 12 more than three fourths of the number. Find the number.

- (a) 120 (b) 160
(c) 200 (d) 240

RRB NTPC 30.12.2020 (Shift-II) Stage Ist

Ans. (d) : Let the number = x

According to the question,

$$\frac{4}{5}x - \frac{3}{4}x = 12$$

$$\frac{16x - 15x}{20} = 12$$

$$x = 240$$

Hence the number is 240.

185. If $\frac{1}{5}$ of a number multiplied by $\frac{2}{3}$ of the same number gives 480, then the number is?

- (a) 60 (b) 70
(c) 80 (d) 100

RRB NTPC 10.01.2021 (Shift-II) Stage Ist

Ans. (a) : Let, number = x

According to the question-

$$x \times \frac{1}{5} \times x \times \frac{2}{3} = 480$$

$$\frac{2x^2}{15} = 480$$

$$x^2 = 240 \times 15$$

$$x^2 = 3600$$

$$\boxed{x = 60}$$

186. One-fourth of a number is equal to three-eighth of another number. If 30 is added to the first number, then it becomes six times that of the second number. The first number is:

- (a) 12 (b) 20
(c) 10 (d) 15

RRB NTPC 13.01.2021 (Shift-II) Stage Ist

Ans. (c) : Let the first number is x and the second number is y then,

According to the question,

$$\frac{x}{4} = \frac{3}{8}y$$

$$x = \frac{3}{2}y \quad \dots (i)$$

And $x + 30 = 6y \quad \dots (ii)$

Substituting the value of x from equation (i) in equation (ii)-

$$\frac{3}{2}y + 30 = 6y$$

$$\frac{3}{2}y - 6y = -30$$

$$\frac{-9y}{2} = -30$$

$$y = \frac{20}{3}$$

From equation (i)-

$$x = \frac{3}{2} \times \frac{20}{3}$$

$$x = 10$$

187. Calculate the positive number which when added by 15 is equal to 100 times the reciprocal of the number.

- (a) 10 (b) 20
(c) 5 (d) 15

RRB NTPC 15.02.2021 (Shift-II) Stage Ist

Ans. (c) : Let the positive number is x

According to the question,

$$x + 15 = \frac{1}{x} \times 100$$

$$x^2 + 15x = 100$$

$$x^2 + 15x - 100 = 0$$

$$x^2 + 20x - 5x - 100 = 0$$

$$x(x + 20) - 5(x + 20) = 0$$

$$(x + 20)(x - 5) = 0$$

$$\boxed{x = 5}$$

Hence the number is 5.

188. A number consists of 3 digits whose sum is 18 and the middle digit is equal to the sum of other two. If the number increased by 297 when its digits are reversed, then what is the number?

- (a) 585 (b) 495
(c) 396 (d) 486

RRB NTPC 01.02.2021 (Shift-I) Stage Ist

Ans. (c) : Let the digits of number are x, y and z respectively.

Given,

$$x + y + z = 18 \quad \dots (i)$$

And, $y = x + z$

On putting the value of y in equation (i),

$$x + x + z + z = 18$$

$$2x + 2z = 18$$

$$x + z = 9 \quad \dots (ii)$$

According to the question,

$$100x + 10y + z + 297 = 100z + 10y + x$$

$$99x + 297 = 99z$$

$$x + 3 = z \quad \dots (iii)$$

On putting the value of z in equation (ii),

$$x + x + 3 = 9$$

$$2x = 6$$

$$x = 3$$

On putting the value of x in equation (ii),

$$x + z = 9$$

$$3 + z = 9$$

$$z = 6$$

From equation (i),

$$y = x + z$$

$$y = 3 + 6$$

$$y = 9$$

Hence, the number will be 396.

189. If a positive number is subtracted from its square, we get 812. Find the number.

- (a) 25 (b) 23
(c) 27 (d) 29

RRB NTPC 01.02.2021 (Shift-I) Stage Ist

Ans. (d) : Let the number = x

and square of number = x^2

According to the question,

$$x^2 - x = 812$$

$$x^2 - x - 812 = 0$$

$$x^2 - 29x + 28x - 812 = 0$$

$$x(x - 29) + 28(x - 29) = 0$$

$$(x - 29)(x + 28) = 0$$

$$x - 29 = 0$$

$$x = 29$$

190. The sum of 4 consecutive odd numbers is 160. Find the smallest number.

- (a) 27 (b) 37
(c) 35 (d) 25

RRB NTPC 01.02.2021 (Shift-I) Stage Ist

Ans. (b) : Let the 4 consecutive odd numbers is

$$x, x + 2, x + 4, x + 6$$

According to the question,

$$(x) + (x + 2) + (x + 4) + (x + 6) = 160$$

$$4x + 12 = 160$$

$$4x = 148$$

$$x = \frac{148}{4}$$

$$x = 37$$

Hence, the smallest number (x) = 37

191. There are two numbers with the difference of 14 between them and the difference of their squares is 56. What are those numbers?

- (a) 9, -5 (b) 2, 16
(c) 3, 17 (d) 23, -9

RRB NTPC 22.02.2021 (Shift-I) Stage Ist

Ans. (a) : Let the two numbers be x and y respectively. According to the question,
 $x - y = 14$ (i)
 And $x^2 - y^2 = 56$ (ii)
 $(x + y)(x - y) = 56$ (From, $x^2 - y^2 = (x + y)(x - y)$)
 From equation (i)
 $x + y = 4$ (iii)
 From equation (i) and equation (iii),
 $x = 9, y = -5$

192. The sum of half, one-third and one-fifth of a number exceeds the number by 12. What is the number?

- (a) 144 (b) 360
(c) 444 (d) 122

RRB NTPC 10.02.2021 (Shift-II) Stage Ist

Ans. (b) : Let the number = x
 According to the question,
 $x \left(\frac{1}{2} + \frac{1}{3} + \frac{1}{5} \right) - x = 12$
 $\frac{31x}{30} - x = 12$
 $\frac{x}{30} = 12$
 $x = 360$

193. A number when reduced by $22\frac{1}{2}\%$ becomes 217, find the number.

- (a) 315 (b) 212
(c) 280 (d) 420

RRB NTPC 29.12.2020 (Shift-II) Stage Ist

Ans. (c) : Let the number is x
 According to the question,
 $x \left(100\% - 22\frac{1}{2}\% \right) = 217$
 $x \times 77\frac{1}{2}\% = 217$
 $x = \frac{217 \times 100 \times 2}{155}$
 $x = 280$

194. When 38 is added to 30% of a number. The result is 50. What is the number?

- (a) 20 (b) 80
(c) 60 (d) 40

RRB NTPC 23.02.2021 (Shift-I) Stage Ist

Ans. (d) : Let the number = x
 According to the question,
 $x \times \frac{30}{100} + 38 = 50$

$$x \times \frac{30}{100} = 50 - 38 = 12$$

$$x \times 30 = 100 \times 12$$

$$x = \frac{1200}{30} = 40$$

Hence, number (x) = 40

195. The sum of two numbers is 20 and the difference of their squares is 80. Select both the numbers from the given alternatives.

- (a) 15, 5 (b) 13, 7
(c) 11, 9 (d) 12, 8

RRB NTPC 15.02.2021 (Shift-I) Stage Ist

Ans. (d) : Let the numbers are x and y
 According to the question,

$$x + y = 20 \quad \dots (i)$$

$$x^2 - y^2 = 80$$

$$(x - y)(x + y) = 80$$

From equation (i),

$$x - y = 4 \quad \dots (ii)$$

From equation (i) and (ii),

$$x = 12, y = 8$$

196. When 40 is subtracted from a number, it reduces to its 60%. What is the number?

- (a) 130 (b) 160
(c) 200 (d) 100

RRB NTPC 09.02.2021 (Shift-I) Stage Ist

Ans. (d) : Let the number is x
 According to the question,

$$x - 40 = x \times \frac{60}{100}$$

$$x - \frac{60x}{100} = 40$$

$$\frac{40x}{100} = 40$$

$$x = 100$$

197. The 5th part of a number when divided by 3 yields three times half of tenth part of half of 80. What is the number?

- (a) 60 (b) 90
(c) 45 (d) 44

RRB NTPC 20.01.2021 (Shift-I) Stage Ist

Ans. (b) : Let the number is x
 According to the question,

$$\frac{x \times \frac{1}{5}}{3} = \left[\frac{80 \times \frac{1}{2} \times \frac{1}{10}}{2} \right] \times 3$$

$$\frac{x}{15} = 40 \times \frac{1}{10} \times \frac{1}{2} \times 3$$

$$x = 90$$

198. If three-fourth of a number is 50 more than its one-third, then find the number.

- (a) 140 (b) 130
(c) 120 (d) 100

RRB NTPC 16.01.2021 (Shift-I) Stage Ist

Ans. (c) : Let the number is x
According to the question,

$$\frac{3}{4}x = \frac{1}{3}x + 50$$

$$\frac{3}{4}x - \frac{1}{3}x = 50$$

$$\frac{9x - 4x}{12} = 50$$

$$5x = 600$$

$$x = 120$$

- 199. The sum of three consecutive odd numbers is more than first number of it by 20. Find the largest number among them.**
 (a) 13 (b) 9
 (c) 11 (d) 7

RRB JE - 28/06/2019 (Shift-III)

Ans. (c) Let the three consecutive odd numbers are $x, x+2, x+4$.
According to the question,

$$x + x + 2 + x + 4 = x + 20$$

$$3x + 6 = x + 20$$

$$2x = 14$$

$$x = 7$$

Hence, the required number = $x + 4 = 7 + 4 = 11$

- 200. Three times the first of three consecutive odd integers is 3 more than two times the third. Find the third integer.**
 (a) 15 (b) 13
 (c) 11 (d) 9

RRB JE - 26/06/2019 (Shift-III)

Ans : (a) Let three consecutive odd integers = $x, x+2, x+4$
According to the question,

$$3x = 2(x + 4) + 3$$

$$3x = 2x + 8 + 3$$

$$x = 11$$

Hence, the third integer = $x + 4 = 11 + 4 = 15$

- 201. On adding 18 to a two digit number, the digits of the number are interchanged. The product of the digits is '8'. Find the number.**
 (a) 42 (b) 18
 (c) 32 (d) 24

RRB JE - 27/06/2019 (Shift-I)

Ans : (d) Let the unit digit = x .
tens digit = y
The number = $10y + x$
Given, $xy = 8$ ---(i)
According to the question,

$$10y + x + 18 = 10x + y$$

$$9x - 9y = 18$$

$$x - y = 2$$

On putting the value of $x = \frac{8}{y}$

$$\therefore \frac{8}{y} - y = 2$$

$$8 - y^2 = 2y$$

$$y^2 + 2y - 8 = 0$$

$$y^2 + 4y - 2y - 8 = 0$$

$$y(y + 4) - 2(y + 4) = 0$$

$$(y - 2)(y + 4) = 0$$

$$y = 2$$

On putting the value of y in equation (i)-

$$x \times 2 = 8$$

$$x = 4$$

Hence required number = $10y + x = 10 \times 2 + 4 = 24$

- 202. The sum of the digits of a two digit number is 10. When the digits are interchanged is reduced the number to 36. Find the changed number.**
 (a) 82 (b) 73
 (c) 37 (d) 28

RRB RPF Constable -17/01/2019 (Shift-III)

Ans : (c) Let the number = $10x + y$
According to the question,

$$x + y = 10 \dots\dots(i)$$

The number obtained by interchanging digits = $(10y + x)$
According to the question

$$(10x + y) - (10y + x) = 36$$

$$\Rightarrow 9x - 9y = 36$$

$$x - y = 4 \dots\dots(ii)$$

By adding equation (i) and (ii),

$$2x = 14$$

$$x = 7$$

And $y = 3$

Hence, the changed number $(10y + x) = 10 \times 3 + 7 = 37$

- 203. The sum of a two digit number and the number made by interchanging its digits is 132. If the difference of the digits is 4, find the number.**
 (a) 37 (b) 84
 (c) 73 (d) 62

RRB RPF-SI -16/01/2019 (Shift-III)

Ans : (b) Let the tens digit of the number is x and the unit digit is y .

So, the number = $10x + y$

According to the question,

$$x - y = 4 \dots\dots(i)$$

And, $10x + y + 10y + x = 132$

$$11x + 11y = 132$$

$$x + y = 12 \dots\dots(ii)$$

From equation (i) and (ii),

$$x - y = 4$$

$$x + y = 12$$

$$2x = 16$$

$$x = 8, y = 4$$

Hence, the required number = $10x + y = 10 \times 8 + 4 = 84$

- 204. The sum of the digits of a two digit number is 12. The new number formed when the digits are interchanged is 18 more than the original number. What is the original number?**
 (a) 39 (b) 48
 (c) 75 (d) 57

RRB Group-D - 26/11/2018 (Shift-III)

Ans : (d) Let the tens digit of the number is x and the unit digit is y .

Given, $x + y = 12 \dots\dots(i)$

Hence, the two digit number = $10x + y$

The number obtained by interchanging the place of the digits = $10y + x$

According to the question,
 $10y + x = 10x + y + 18$
 $9y - 9x = 18$
 $9x - 9y = -18$
 $x - y = -2$ (ii)

By adding equation (i) and (ii),
 $x + y = 12$
 $x - y = -2$
 $2x = 10$
 $x = 5$
 $y = 7$

Hence, the required number = $10x + y = 10 \times 5 + 7 = 57$

205. The sum of the digits of a two digit number is 9. Also nine times of this number is twice the number obtained by reversing the order of the digits. Find the number.

- (a) 19 (b) 18
(c) 28 (d) 30

RRB Group-D – 05/11/2018 (Shift-III)

Ans. (b) : Let the tens digit is x and the unit digit is y.
 \therefore The number = $10x + y$
According to the first condition,
 $x + y = 9$ (i)
According to the second condition,
 $(10x + y) \times 9 = (10y + x) \times 2$
 $90x + 9y = 20y + 2x$
 $88x = 11y$
 $y = 8x$
Putting the value of y in equation (i),
 $x + 8x = 9$
 $x = 1$
Putting the value of x in equation (i),
 $1 + y = 9$
 $y = 8$
Hence, the number = $10x + y$
 $= 10 \times 1 + 8 = 18$

206. The sum of the digits of a two digit number is 11. The new number formed when the digits interchanged is 45 less than the original number. Find the original number.

- (a) 92 (b) 56
(c) 65 (d) 83

RRB Group-D – 15/10/2018 (Shift-III)

Ans. (d) : Let the tens digit of the number is a and the unit digit is b.
So, the number = $10a + b$
According to the question,
 $a + b = 11$ (i)
 $10b + a = 10a + b - 45$
 $9a - 9b = 45$
 $a - b = 5$ (ii)
On adding equation (i) and (ii),
 $a + b = 11$
 $a - b = 5$
 $2a = 16$
 $a = 8$

Putting the value of a in equation (i),
 $8 + b = 11$
 $b = 3$
Hence, the required number = $10 \times 8 + 3 = 83$

207. The difference between a number of two digits and the new number formed when the digits are interchanged is 45. Find the difference between the two digits.

- (a) 4 (b) 5
(c) 6 (d) 7

RRB NTPC 05.04.2016 Shift : 2

Ans : (b) Let the tens digit be x.
And the unit digit be y.
The number = $10x + y$
According to the question,
 $(10x + y) - (10y + x) = 45$
 $9x - 9y = 45$
Hence, the required difference will be $x - y = 5$

208. The sum of the digits of a two digit number is 11. If the digits are interchanged, the number decreases to 63. Find the number.

- (a) 83 (b) 92
(c) 29 (d) 38

RRB NTPC 04.04.2016 Shift : 3

Ans : (b) Let the tens digit be x and the unit digit be y of the number.

\therefore The number = $10x + y$
According to the question-
 $x + y = 11$ (i)
And $10y + x = 10x + y - 63$
 $9x - 9y = 63$
 $x - y = 7$ (ii)

By adding equation (i) and (ii)
 $2x = 18 \Rightarrow x = 9, y = 2$
Hence, the number = $10x + y = 10 \times 9 + 2 = 92$

209. The sum of the digits of a two digit number is 9. When 27 is added to the number, the place of the digits are interchanged. Find the number.

- (a) 45 (b) 36
(c) 18 (d) 27

RRB NTPC 03.04.2016 Shift : 1

Ans : (b) Let the unit digit be x in the two digit number.
Then,
According to the question,
The tens digit = $9 - x$ And the number = $10(9 - x) + x$
 $10(9 - x) + x + 27 = 10x + 9 - x$
 $\Rightarrow 90 - 10x + x + 27 = 9x + 9$
 $\Rightarrow 90 + 27 - 9 = 18x$
 $\Rightarrow 18x = 108$
 $x = 6$
Then, the number = $10(9 - x) + x$
 $= 10(9 - 6) + 6 = 36$

210. The sum of the digits of a two digit number is 13. If those digits are interchanged, the number gets decreased by 27. Find the changed number.

- (a) 85 (b) 76
(c) 67 (d) 58

RRB NTPC 02.04.2016 Shift : 1

Ans : (d) Let the tens digit is x ,
 The unit digit = $13 - x$
 \therefore The number = $10 \times x + (13 - x)$
 According to the question,
 $10 \times (13 - x) + x = 10 \times x + (13 - x) - 27$
 $130 - 10x + x = 10x + 13 - x - 27$
 $18x = 144$
 $x = 8$
 \therefore The changed number,
 $= 10 \times (13 - x) + x$
 $= 10 \times (13 - 8) + 8$
 $= 10 \times 5 + 8 = 58$

- 211. The sum of a two digit number is 9. The number is reduces from 45, when the digits are interchanged, find the changed number.**
 (a) 45 (b) 72
 (c) 63 (d) 27
RRB NTPC 02.04.2016 Shift : 2

Ans : (d) Let the tens digit be = x
 And the unit digit be = y
 Number = $10x + y$
 Given, $x + y = 9$ (1)
 According to the question,
 $(10x + y) - (10y + x) = 45$
 $9x - 9y = 45$
 $x - y = 5$ (2)
 Equation (1) + (2)
 $2x = 14 \Rightarrow x = 7$
 From, equation (1),
 $y = 9 - 7 = 2$
 Hence, The required number = $10y + x = 10 \times 2 + 7 = 27$

- 212. The sum of digits of a two-digit number is 10. When the digits are reversed, the number decreases by 54. Find the new number.**
 (a) 73 (b) 28
 (c) 82 (d) 37
RRB NTPC 02.04.2016 Shift : 3

Ans : (b) Let the tens digit of the number is x and the unit digit is y .
 \therefore The number = $10x + y$
 According to the question,
 $x + y = 10$ -----(i)
 And $10x + y = 10y + x + 54$
 $\Rightarrow 9x - 9y = 54 \Rightarrow x - y = 6$ -----(ii)
 By adding equation (i) and (ii),
 $2x = 16 \Rightarrow x = 8, y = 2$
 Hence, the new number
 $= 10y + x = 10 \times 2 + 8 = 28$

- 213. The sum of digits of a two-digit number is 10. When the digits are interchanged, the number increases by 18. Find the number.**
 (a) 46 (b) 64
 (c) 19 (d) 28
RRB NTPC 29.03.2016 Shift : 1

Ans : (a) Let the tens digit of the number is x and the unit digit is y .
 \therefore The number = $10x + y$
 According to the question-
 $x + y = 10$ -----(i)
 And $10x + y = 10y + x - 18$

$9x - 9y = -18$
 $x - y = -2$ -----(ii)
 By adding equation (i) and (ii) -
 $2x = 8 \Rightarrow x = 4, y = 6$
 Hence, The required number = $10 \times 4 + 6 = 46$

- 214. The sum of a two digit number and the number formed by interchanging its digits, is 99. Find the number if the difference of the digits is 3.**
 (a) 27 (b) 63
 (c) 45 (d) 54
RRB NTPC 10.04.2016 Shift : 3

Ans : (b) Let the unit digit be y and the tens digit be x .
 \therefore The number = $10x + y$
 According to the question,
 $(10x + y) + (10y + x) = 99$
 $11x + 11y = 99$
 $x + y = 9$ (i)
 $x - y = 3$ (ii)
 By adding equation (i) and (ii),
 $2x = 12$
 $x = 6$
 From equation (i), $y = 3$
 \therefore The required number = $10x + y = 10 \times 6 + 3 = 60 + 3 = 63$

- 215. The sum of the digits of a two digit number is 5. When the digits are reversed the number decreases by 9. Find the changed number.**
 (a) 32 (b) 23
 (c) 41 (d) 14
RRB NTPC 28.04.2016 Shift : 3

Ans : (b) Let the tens digit of the number be x and the unit digit be y .
 \therefore the number = $10x + y$
 According to first condition,
 $x + y = 5$ (i)
 The obtained number after reversing the digits = $10y + x$
 According to the question,
 $(10x + y) - (10y + x) = 9$
 $\Rightarrow 9x - 9y = 9$
 $\Rightarrow x - y = 1$ (ii)
 By adding equation (i) and (ii),
 $2x = 6$
 $x = 3$
 From equation (ii)
 $3 - y = 1$
 $y = 3 - 1 = 2$
 Hence, the changed number = $10y + x$
 $= 10 \times 2 + 3 = 23$

Type - 5

- 216. $\overline{0.23}$ is**
 (a) An irrational number
 (b) A rational number
 (c) A prime number
 (d) A composite number
RRB NTPC 20.01.2021 (Shift-I) Stage Ist

Ans. (b) : Let us assume
 $y = 0.\overline{23}$(i)
 Multiplying by 100 in equation (i)-

$100y = 23 \cdot \overline{23}$ (ii)
 Subtracting eqⁿ (i) from eqⁿ (ii)
 $99y = 23$
 $y = \frac{23}{99}$ (Rational number)

217. $(\sqrt{3} + \sqrt{11})^2$ is a/an
 (a) Natural number (b) Whole number
 (c) Irrational number (d) Rational number

RRB NTPC 20.01.2021 (Shift-I) Stage Ist

Ans. (c) :
 $(\sqrt{3} + \sqrt{11})^2 = 3 + 11 + 2 \times \sqrt{3} \times \sqrt{11}$
 $(\sqrt{3} + \sqrt{11})^2 = 14 + 2\sqrt{33}$
 Therefore $(\sqrt{3} + \sqrt{11})^2$ is an irrational number

218. The product of $\sqrt{2}$ and $\sqrt{3}$ is:
 (a) Sometimes a rational number and sometimes an irrational number
 (b) Equal to 4
 (c) A rational number
 (d) An irrational number

RRB NTPC 20.01.2021 (Shift-I) Stage Ist

Ans. (d) : From above question,
 $\sqrt{2} \times \sqrt{3} = \sqrt{6}$ (irrational number)
 An irrational number is a real number that can't be expressed in the form p/q , $q \neq 0$
 for example - $\sqrt{2}, \sqrt{5}, \sqrt{7}$, etc.

219. The number of rational number between 5 and 7 is:
 (a) 2 (b) 0
 (c) Infinite (d) 1

RRB NTPC 19.01.2021 (Shift-II) Stage Ist

Ans. (c) : Note:- There are infinite number of rational numbers between any two integers. Hence, there are infinite number of rational numbers that occurs between 5 and 7.

220. $3 + 2\sqrt{5}$ is :
 (a) Rational number (b) Irrational number
 (c) Composite number (d) Natural number

RRB NTPC 07.01.2021 (Shift-II) Stage Ist

Ans. (b) : Irrational number: The set of real numbers that cannot be represented in form of p/q is called irrational number that means the number which is not rational is called irrational number.
 Example- $\sqrt{2}, \sqrt{3}$
 $\therefore 3 + 2\sqrt{5}$ is an irrational number.

221. Which of the following rational number lies between $\frac{1}{4}$ and $\frac{1}{2}$.
 (a) $\frac{1}{6}$ (b) $\frac{1}{8}$
 (c) $\frac{3}{5}$ (d) $\frac{3}{8}$

RRB NTPC 31.01.2021 (Shift-II) Stage Ist

Ans. (d) :

$$= \frac{1}{4} + \frac{1}{2} = \frac{1+2}{2} = \frac{3}{2}$$

$$= \frac{3}{2} = \frac{3}{2} = \frac{3}{2}$$
 Therefore, rational number $\frac{3}{8}$ will lie between $\frac{1}{4}$ and $\frac{1}{2}$.

222. Express $\frac{-40}{56}$ as a rational number whose numerator is -5.

- (a) $-\frac{5}{6}$ (b) $-\frac{5}{8}$
 (c) $-\frac{5}{7}$ (d) $-\frac{5}{18}$

RRB NTPC 23.07.2021 (Shift-II) Stage Ist

Ans. (c) : $-\frac{40}{56} = -\frac{8 \times 5}{8 \times 7} = -\frac{5}{7}$
 It is clear that option (c) is the required rational number.

223. $\frac{(3\sqrt{5} + \sqrt{125})}{(\sqrt{80} + 6\sqrt{5})}$ is

- (a) A rational number (b) A natural number
 (c) An integer (d) An irrational number

RRB NTPC 13.01.2021 (Shift-I) Stage Ist

Ans. (a) : Given,

$$\frac{3\sqrt{5} + \sqrt{125}}{\sqrt{80} + 6\sqrt{5}}$$

$$= \frac{3\sqrt{5} + 5\sqrt{5}}{4\sqrt{5} + 6\sqrt{5}}$$

$$= \frac{8\sqrt{5}}{10\sqrt{5}} = \frac{8}{10} = \frac{4}{5}$$
 (rational number)
 Therefore $\frac{3\sqrt{5} + \sqrt{125}}{\sqrt{80} + 6\sqrt{5}}$ is a rational number

224. Number 0.232323 can be written in rational form as:

- (a) $\frac{23}{999}$ (b) $\frac{23}{99}$ (c) $\frac{23}{9}$ (d) $\frac{23}{990}$

RRB NTPC 30.12.2020 (Shift-I) Stage Ist

Ans. (b) : $0.232323 \dots$
 $= 0.\overline{23}$
 $= \frac{23}{99}$

225. Which of the following rational number lies between 9.2 and 10.5?
 (a) 9.15 (b) 9.55
 (c) 10.67 (d) 9.08

RRB NTPC 03.03.2021 (Shift-I) Stage Ist

Ans. (b) : $\therefore 9.55$ is the rational number lies between 9.2 and 10.5.

226. Which of the following is a rational number between $\sqrt{5}$ and $\sqrt{7}$?

- (a) $4\frac{1}{5}$ (b) $1\frac{1}{5}$
 (c) $2\frac{2}{5}$ (d) $3\frac{1}{5}$

RRB NTPC 20.01.2021 (Shift-I) Stage Ist

Ans. (c) : $\sqrt{5} = 2.23$ and $\sqrt{7} = 2.64$
 From the given options,
 (a) $4\frac{1}{5} = \frac{21}{5} = 4.2$ (b) $1\frac{1}{5} = \frac{6}{5} = 1.2$
 (c) $2\frac{2}{5} = \frac{12}{5} = 2.4$ (d) $3\frac{1}{5} = \frac{16}{5} = 3.2$
 Hence $2\frac{2}{5}$ is a rational number between $\sqrt{5}$ and $\sqrt{7}$.

227. Which of the following is not a rational number?

- $\sqrt{3^2+4^2}$, $\sqrt{12.96}$, $\sqrt{125}$ and $\sqrt{900}$
 (a) $\sqrt{12.96}$ (b) $\sqrt{900}$
 (c) $\sqrt{125}$ (d) $\sqrt{3^2+4^2}$

RRB NTPC 05.01.2021 (Shift-I) Stage Ist

Ans. (c) : $\sqrt{3^2+4^2} = \sqrt{9+16} = \sqrt{25} = 5 \rightarrow$ Rational number
 $\sqrt{12.96} = \sqrt{1296 \times 10^{-2}} = \frac{36}{10} = \frac{18}{5} \rightarrow$ Rational number
 $\sqrt{125} = \sqrt{5 \times 5 \times 5} = 5\sqrt{5} \rightarrow$ Irrational Number
 $\sqrt{900} = \sqrt{30 \times 30} = 30 \rightarrow$ Rational Number
 Hence, $\sqrt{125}$ is not a rational number.

228. Which of the following is not a rational number?

- (a) $\sqrt[3]{1728}$ (b) π
 (c) 2.487627287 (d) 8.36712846781

RRB RPF-SI -05/01/2019 (Shift-I)

Ans : (b) Irrational numbers is a real number which cannot be expressed as p/q. (where p and q are integers and q is not 0).
 It means, irrational number cannot be expressed as fractions. for example $\sqrt{2}$ and π are irrational number.

229. Which of the following is not an irrational?

- (a) $\sqrt{5428}$ (b) $\sqrt{6084}$
 (c) π (d) $\sqrt{7652}$

RRB RPF Constable -18/01/2019 (Shift-III)

Ans. (b) : The real numbers which cannot be expressed as p/q, where p and q are integers and q is not 0, are called irrational numbers. These numbers are represented by Q^c or Q^i .

For example- $\sqrt{2}, 1+\sqrt{3}, \pi$

$\sqrt{6084} = \sqrt{78 \times 78} = 78$ (Rational number)

230. Denote 0.125 as a rational number.

- (a) 119/993 (b) 113/990
 (c) 125/999 (d) 100/999

RRB JE - 25/05/2019 (Shift-I)

Ans : (c) Let $x = 0.\overline{125}$

$x = 0.125125 \dots\dots$ (i)

$1000x = 125.125125 \dots\dots$ (ii)

From equation (ii)- equation (i) -

$999x = (125.125125 \dots\dots) - (0.125125 \dots\dots)$

$999x = 125.0$

$x = \frac{125}{999}$

231. Find the value of the denominator of $\frac{1}{(5+\sqrt{3})}$

in rational number.

- (a) $\frac{(5-\sqrt{3})}{22}$ (b) $5 + \frac{\sqrt{3}}{22}$
 (c) $5 - \frac{\sqrt{3}}{20}$ (d) $\frac{(5-\sqrt{3})}{20}$

RRB Group-D - 29/10/2018 (Shift-III)

Ans : (a)

According to the question-

$$\frac{1}{(5+\sqrt{3})} = \frac{(5-\sqrt{3})}{(5+\sqrt{3})(5-\sqrt{3})}$$

$$= \frac{(5-\sqrt{3})}{(5)^2 - (\sqrt{3})^2}$$

$$= \frac{(5-\sqrt{3})}{25-3} = \frac{(5-\sqrt{3})}{22}$$

232. Which of the following square roots is irrational?

- (a) 21025 (b) 18025
 (c) 13225 (d) 15625

RRB Paramedical Exam - 21/07/2018 (Shift-I)

Ans. (b) : $\sqrt{21025} = \sqrt{5 \times 5 \times 29 \times 29}$
 $= 145$ (Rational number)
 $\sqrt{18025} = \sqrt{5 \times 5 \times 7 \times 103}$
 $= 135.257$ (Irrational number)
 $\sqrt{13225} = \sqrt{5 \times 5 \times 23 \times 23}$
 $= 5 \times 23 = 115$ (Rational number)
 $\sqrt{15625} = \sqrt{5 \times 5 \times 5 \times 5 \times 5 \times 5}$
 $= 5 \times 5 \times 5 = 125$ (Rational number)

Hence, it is clear that the square root of 18025 is irrational number.

233. Find the rational value of the denominator of $1/(2+\sqrt{3})$.

- (a) $2 + \sqrt{3}$ (b) $2 - \sqrt{3}$
 (c) 1 (d) $4 + \sqrt{3}$

RRB Group-D - 22/10/2018 (Shift-III)

Ans : (b) Rationalizing the denominator of $\frac{1}{2+\sqrt{3}}$,

$$\begin{aligned} & \frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} \\ &= \frac{2-\sqrt{3}}{2^2-(\sqrt{3})^2} \\ &= \frac{2-\sqrt{3}}{4-3} = 2-\sqrt{3} \end{aligned}$$

234. Find the rational value of the denominator of

$$\frac{1}{(5+2\sqrt{3})}$$

(a) $\frac{(5-2\sqrt{3})}{12}$ (b) $\frac{(5-2\sqrt{3})}{13}$
(c) $5-\frac{2\sqrt{3}}{13}$ (d) $5+\frac{2\sqrt{3}}{13}$

RRB Group-D – 25/10/2018 (Shift-II)

Ans : (b) Rationalizing the denominator of the given fraction,

$$\begin{aligned} &= \frac{1}{(5+2\sqrt{3})} \times \frac{(5-2\sqrt{3})}{(5-2\sqrt{3})} \\ &= \frac{(5-2\sqrt{3})}{(5)^2-(2\sqrt{3})^2} \quad [(a+b)(a-b) = a^2-b^2] \\ &= \frac{5-2\sqrt{3}}{25-12} = \frac{5-2\sqrt{3}}{13} \end{aligned}$$

235. From the given options, find the rational number between the range 2/4 and 0.6.

(a) $\frac{11}{25}$ (b) $\frac{21}{40}$
(c) $\frac{3}{4}$ (d) $\frac{11}{4}$

RRB NTPC 19.01.2017 Shift : 2

Ans : (b) From option (b)

The rational number between $\frac{2}{4} = 0.5$ and 0.6

$$= \frac{21}{40} = 0.525$$

Hence, $0.5 < 0.525 < 0.6$

236. Which of the following numbers is irrational?

(a) $\sqrt[3]{64}$ (b) $\sqrt{64}$
(c) $\sqrt[6]{64}$ (d) $\sqrt[4]{64}$

RRB ALP & Tec. (30-08-18 Shift-I)

Ans : (d) From options,

$$\begin{aligned} \sqrt[3]{64} &= (64)^{\frac{1}{3}} = (4^3)^{\frac{1}{3}} = 4 \text{ (Rational number)} \\ \sqrt{64} &= (64)^{\frac{1}{2}} = (8^2)^{\frac{1}{2}} = 8 \text{ (Rational number)} \\ \sqrt[6]{64} &= (64)^{\frac{1}{6}} = (2^6)^{\frac{1}{6}} = 2 \text{ (Rational number)} \\ \sqrt[4]{64} &= \sqrt[4]{16} \times \sqrt[4]{4} = 2 \times \sqrt[4]{4} = \text{(Irrational number)} \end{aligned}$$

237. Among the following which is a rational number?

(a) $\sqrt[3]{2}$ (b) $\sqrt[3]{8}$ (c) $\sqrt[3]{4}$ (d) $\sqrt[3]{12}$

RRB ALP & Tec. (13-08-18 Shift-III)

Ans : (b) Rational number can be written as p/q ; (q ≠ 0).

From option (b),

$$\sqrt[3]{8} = 2 \text{ is rational number}$$

238. Which of the numbers given below is NOT rational number?

(a) $\sqrt{64}$ (b) $\sqrt[3]{64}$ (c) $\sqrt[3]{8}$ (d) $\sqrt{8}$

RRB ALP & Tec. (09-08-18 Shift-II)

Ans : (d) $\sqrt{64} = 8$ (Rational number)

$$\sqrt[3]{64} = 4 \text{ (Rational number)}$$

$$\sqrt[3]{8} = 2 \text{ (Rational number)}$$

$$\sqrt{8} = 2\sqrt{2} \text{ (Irrational number)}$$

Hence $2\sqrt{2}$ is not a rational number.

(A number which we can write as p/q where p and q both are integers but q ≠ 0 is called rational numbers.)

239. All irrational numbers are-----numbers.

(a) Integers (b) Imaginary
(c) Whole (d) Real

RRB NTPC 19.01.2017 Shift : 3

Ans : (d) All irrational numbers are real numbers.

As- $\sqrt{2}$

240. Which of the following is an irrational?

(a) $\sqrt{1000000}$ (b) $\sqrt[3]{1000000}$
(c) $\sqrt[6]{1000000}$ (d) $\sqrt[4]{1000000}$

RRB Group-D – 08/10/2018 (Shift-II)

Ans : (d) From options-

(a) $\sqrt{1000000}$

$$\sqrt{100 \times 100 \times 100} = 10 \times 10 \times 10 = 1000 \text{ (Rational)}$$

(b) $\sqrt[3]{1000000} = (100^3)^{\frac{1}{3}} = 100 \text{ (Rational)}$

(c) $\sqrt[6]{1000000} = (10^6)^{\frac{1}{6}} = 10 \text{ (Rational)}$

(d) $\sqrt[4]{1000000} = 10\sqrt[4]{100} \text{ (Irrational)}$

241. Which of the following is an irrational number?

(a) $\sqrt[4]{4}$ (b) $\sqrt[3]{8}$ (c) $\sqrt{16}$ (d) $\sqrt[4]{1}$

RRB Group-D – 22/09/2018 (Shift-III)

Ans. (a) : Irrational number – The number which cannot be expressed as p/q. Example- $\sqrt{3}, \sqrt{6}, \dots, \sqrt[4]{4}$

From options–

(a) $\sqrt[4]{4} = (2^2)^{\frac{1}{4}} = 2^{\frac{1}{2}} = \sqrt{2} \text{ (Irrational number)}$

(b) $\sqrt[3]{8} = \sqrt[3]{2 \times 2 \times 2} = 2 \text{ (Rational number)}$

(c) $\sqrt{16} = \sqrt{2 \times 2 \times 2 \times 2} = 2 \times 2 = 4 \text{ (Rational number)}$

(d) $\sqrt[4]{1} = 1 \text{ (Rational number)}$

Note– π is an irrational number while $22/7$ is a rational number.

242. Which of the following is a rational number?

- (a) $\sqrt[3]{2} - 2$ (b) $\sqrt[3]{8} - 2$
 (c) $\sqrt[3]{4} + 4$ (d) $\sqrt[3]{12} + 1$

RRB Group-D – 25/09/2018 (Shift-I)

Ans : (b)

Rational number – Such numbers which can be expressed as p/q ;($q \neq 0$), are called rational numbers.

Example:- $\sqrt[3]{8}, \sqrt{4}$ etc;

Irrational number – Such numbers which cannot be expressed as p/q . Example:- $\pi, \sqrt[3]{2}, \sqrt{2}$ etc;

From options,

$\sqrt[3]{8} - 2 = 0$ is a rational number while others $\sqrt[3]{2} - 2, \sqrt[3]{4} + 4$ and $\sqrt[3]{12} + 1$ are irrational numbers.

243. Which of the following is an irrational number?

- (a) $\sqrt[4]{1024}$ (b) $\sqrt[10]{1024}$
 (c) $\sqrt{1024}$ (d) $\sqrt[3]{1024}$

RRB Group-D – 27/09/2018 (Shift-I)

Ans. (a) From options,

(a) $\sqrt[4]{1024} = 4\sqrt[4]{4}$ (Irrational number)

(b) $\sqrt[10]{1024} = 2$ (Rational number)

(c) $\sqrt{1024} = 32$ (Rational number)

(d) $\sqrt[3]{1024} = 4$ (Rational number)

244. Which of the following is not a rational number?

- (a) $\sqrt[3]{32}$ (b) $\sqrt[3]{64}$
 (c) $\sqrt[3]{27}$ (d) $\sqrt[3]{27}$

RRB Group-D – 28/09/2018 (Shift-I)

Ans : (c) From options,

$\sqrt[3]{32} = 2$ (Rational)

$\sqrt[3]{64} = 4$ (Rational)

$\sqrt[3]{27} = 3$ (Rational)

$\sqrt[4]{32} = 2\sqrt[4]{2}$ (Irrational)

245. Which from the following is a rational number?

- (a) $\sqrt[3]{1551}$ (b) $\sqrt[3]{1331}$
 (c) $\sqrt{1221}$ (d) $\sqrt[4]{1441}$

RRB Group-D – 11/10/2018 (Shift-III)

Ans : (b) A rational number can be written as p/q ;($q \neq 0$).

Hence, From option (b) $\sqrt[3]{1331} = \sqrt[3]{11 \times 11 \times 11} = 11$

Therefore, $11/1$ is a rational number.

246. Whose square root from the following numbers is a rational number?

- (a) 576 (b) 512
 (c) 480 (d) 544

RRB Group-D – 07/12/2018 (Shift-III)

Ans : (a) From the options,

(a) $\sqrt{576} = 24$

(b) $\sqrt{512} = 16\sqrt{2}$

(c) $\sqrt{480} = 4\sqrt{30}$

(d) $\sqrt{544} = 4\sqrt{34}$

Hence, square root of 576 is 24, which is a rational number.

247. Whose square root from the following numbers will be rational?

- (a) 46232 (b) 46233
 (c) 14448 (d) 34225

RRB Group-D – 06/12/2018 (Shift-II)

Ans. (d) : From options–

(a) $\sqrt{46232} = 215.016$

(b) $\sqrt{46233} = 215.0186$

(c) $\sqrt{14448} = 120.199$

(d) $\sqrt{34225} = 185$

Hence, The square root of 34225 is 185, which is a rational number.

248. Whose square root from the following numbers is irrational?

- (a) 5184 (b) 4465
 (c) 3025 (d) 8836

RRB Group-D – 05/12/2018 (Shift-II)

Ans. (b) From options,

(a) $\sqrt{5184} = 72$

(b) $\sqrt{4465} = \sqrt{5 \times 19 \times 47}$ (Irrational)

(c) $\sqrt{3025} = 55$

(d) $\sqrt{8836} = 94$

Hence, the square root of 4465 is irrational.

249. Whose square root from the following numbers is rational?

- (a) 336 (b) 344
 (c) 320 (d) 324

RRB Group-D – 04/12/2018 (Shift-III)

Ans. (d) From option (d),

$\sqrt{324} = \sqrt{18 \times 18} = 18$

Hence, the square root of 324 will be 18, which is a rational number.

250. Whose square root from the following numbers will be irrational?

- (a) 6441 (b) 9604
 (c) 7921 (d) 5776

RRB Group-D – 03/12/2018 (Shift-II)

Ans : (a) From options,

$\sqrt{6441} = 80.25$ is irrational

$\sqrt{9604} = \sqrt{98 \times 98} = 98$

$\sqrt{7921} = \sqrt{89 \times 89} = 89$

$\sqrt{5776} = \sqrt{76 \times 76} = 76$

Hence, the square root of 6441 will be irrational.

251. Whose square root from the following numbers is a rational number?

- (a) 144 (b) 136
 (c) 128 (d) 120

RRB Group-D – 01/12/2018 (Shift-II)

Ans : (a) From options–

$\sqrt{144} = 12$

$\sqrt{136} = 2\sqrt{34}$

$\sqrt{128} = 8\sqrt{2}$

$\sqrt{120} = 2\sqrt{30}$

Hence, the square root of 144 is 12, that is a rational number.

252. Express $\frac{1}{(2+\sqrt{3})}$ as a rational number.

- (a) $5-2\sqrt{3}/12$ (b) $(2-\sqrt{3})/1$
 (c) $(5-2\sqrt{3})/13$ (d) $5+2\sqrt{3}/13$

RRB Group-D – 08/10/2018 (Shift-I)

Ans. (b) :

On rationalizing the given expression $\frac{1}{(2+\sqrt{3})}$,

$$\begin{aligned} &= \frac{1 \times (2-\sqrt{3})}{(2+\sqrt{3})(2-\sqrt{3})} \\ &= \frac{(2-\sqrt{3})}{(4-3)} = \frac{(2-\sqrt{3})}{1} \end{aligned}$$

Type - 6

253. Find the least number which when added to 1780 makes the sum a perfect square.

- (a) 46 (b) 49
 (c) 69 (d) 72

RRB JE - 27/05/2019 (Shift-II)

Ans : (c) On adding 69 to the number 1780 it will be 1849, which is a perfect square number.

Thus-

$$\begin{aligned} 1780 + 69 &= 1849 \\ 1849 &= 43 \times 43 \\ (43)^2 &= 1849 \end{aligned}$$

254. Find the smallest integer whose cube is equal to itself.

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

RRB JE - 22/05/2019 (Shift-I)

Ans : (a) -1 and 1 are such integers whose cube is equal to itself.

Hence, the smallest integer = -1

$$\therefore (-1)^3 = -1$$

255. If the cube of a number is subtracted from $(153)^2$ the result gives 1457. Find the number.

- (a) 18 (b) 16
 (c) 28 (d) 24

RRB JE - 24/05/2019 (Shift-I)

Ans : (c) Let the number be x.

According to the question,

$$\begin{aligned} (153)^2 - x^3 &= 1457 \\ x^3 &= (153)^2 - 1457 \\ x^3 &= 23409 - 1457 \\ x^3 &= 21952 \end{aligned}$$

$$\therefore x = \sqrt[3]{21952} = \sqrt[3]{28 \times 28 \times 28} = 28$$

256. Five times of a positive integer is 3 less than twice of its square. Find the integer.

- (a) 3 (b) 8
 (c) 2 (d) 5

RRB RPF Constable -19/01/2019 (Shift-I)

Ans : (a) Let the positive integer is x.

According to the question-

$$\begin{aligned} 5x &= 2x^2 - 3 \\ 2x^2 - 5x - 3 &= 0 \\ 2x^2 - 6x + x - 3 &= 0 \\ 2x(x-3) + 1(x-3) &= 0 \\ (x-3)(2x+1) &= 0 \\ x-3 &= 0 \\ 2x+1 &= 0 \\ x &= 3 \text{ or } x = -\frac{1}{2} \text{ (Invalid)} \end{aligned}$$

257. Which of these square numbers cannot be expressed as the sum of two prime numbers?

- (a) 81 (b) 49
 (c) 121 (d) 144

RRB JE - 30/05/2019 (Shift-II)

Ans : (c)

81 \rightarrow 2 + 79 (both of which are prime number)

49 \rightarrow 2 + 47 (both of which are prime number)

144 \rightarrow 3 + 141 (both of which are prime number)

121 \rightarrow 2 + 119 (but 119 is not prime number)

Hence, option (c) cannot be expressed as the sum of two prime numbers.

258. Three times the square of a number subtracting by 4 times the number is equal to 50 more than the number. Find the number.

- (a) 5 (b) 4
 (c) 6 (d) 10

RRB JE - 28/05/2019 (Shift-II)

Ans : (a) Let the number be = x

According to the question,

$$\begin{aligned} 3x^2 - x \times 4 &= x + 50 \\ 3x^2 - 4x - x - 50 &= 0 \\ 3x^2 - 5x - 50 &= 0 \\ 3x^2 - 15x + 10x - 50 &= 0 \\ 3x(x-5) + 10(x-5) &= 0 \\ (x-5)(3x+10) &= 0 \\ x-5 &= 0 \\ x &= 5 \end{aligned}$$

259. Which of the following is not a perfect square?

- (a) 2025 (b) 16641
 (c) 1250 (d) 9801

RRB RPF Constable -20/01/2019 (Shift-I)

Ans : (c) From options-

1250 = $(35.36)^2$ is not a perfect square

2025 = $(45)^2$

16641 = $(129)^2$

9801 = $(99)^2$

Hence 1250 is not a perfect square, while others are perfect squares.

260. Which of these numbers is not a sum of two squares?

- (a) 41 (b) 13
 (c) 23 (d) 37

RRB JE - 26/06/2019 (Shift-I)

Ans : (c) From options-

(a) $41 = 5^2 + 4^2$

(b) $13 = 2^2 + 3^2$

(c) 23

(d) $37 = 6^2 + 1^2$

Hence the number 23 is not the sum of two squares.

261. Which of these is a perfect square?

- (a) 9801 (b) 9887
 (c) 9013 (d) 9016

RRB JE - 01/06/2019 (Shift-III)

Ans. (a) From option (a),

$$\begin{array}{r|l} & 99 \\ \hline 9 & 98\ 01 \\ 9 & 81 \\ \hline 189 & 17\ 01 \\ 9 & 17\ 01 \\ \hline & \times\times\times\times \end{array}$$

Hence, 9801 is a perfect square of 99.

262. If the last digit of the square of a number is 1. Find the last digit of its cube.

- (a) Only 9 (b) 1 or 9
(c) Any odd number (d) Only 1

RRB JE - 27/06/2019 (Shift-I)

Ans : (b) Let the number be 9. The last digit of whose square is 1. Which is as follows-

$$9^2 = 81$$

Last digit of 729 which is cube of $9 = 9$

Let the number be 11. The last digit of whose square is 1.

Which is as follows-

$$11^2 = 121$$

The last digit of the cube of 11-

$$11^3 = 1331$$

Hence the last digit = 1

Hence the number will be 1 or 9.

263. The sum and the difference of two numbers are 25 and 3 respectively. Find the difference of their squares.

- (a) 165 (b) 75
(c) 154 (d) 140

RRB JE - 27/06/2019 (Shift-III)

Ans : (b) Let the two numbers are x and y

According to the question

$$x + y = 25 \quad \text{---(i)}$$

$$x - y = 3 \quad \text{---(ii)}$$

$$x^2 - y^2 = (x + y)(x - y) = 25 \times 3 = 75$$

Hence, the difference of their squares = 75

264. How many perfect squares are there between 100 and 200?

- (a) 7 (b) 4
(c) 6 (d) 5

RRB JE - 27/06/2019 (Shift-III)

Ans : (b) Perfect square numbers greater than 100 or nearest to 100 = $121 = (11)^2$

Perfect square numbers smaller than 200 or nearest to 200 = $196 = (14)^2$

The numbers from $(11)^2$ to $(14)^2$ are = 121, 144, 169, 196

Therefore, there will be 4 such perfect square numbers between 100 and 200.

265. Find the least number that should be added to 4042 to make it a perfect square.

- (a) 41 (b) 54
(c) 64 (d) 58

RRB Group-D - 22/09/2018 (Shift-III)

Ans. (b) : Square root of 4042,

$$\begin{array}{r|l} & 63 \\ \hline 6 & 4042 \\ +6 & 36 \\ \hline 123 & 442 \\ & 369 \\ \hline & 73 \end{array}$$

Square of 64 = $64 \times 64 = 4096$

Hence, the required number = $4096 - 4042 = 54$

By adding 54, the number 4042 will become a perfect square.

266. Divide the number 137592 by the smallest number that leaves no remainder and quotient is a perfect cube. Find the cube root of the quotient.

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

RRB Group-D - 05/12/2018 (Shift-II)

Ans. (d) $137592 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 7 \times 7 \times 13$

Hence, it is clear that, dividing 137592 by $7 \times 7 \times 13 = 637$ will leave no remainder And quotient 216 will be a perfect cube.

$$216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3$$

Hence, the required cube root = $2 \times 3 = 6$

267. A positive number exceed its square root by 30. Find the number.

- (a) 16 (b) 36
(c) 25 (d) 49

RRB NTPC 02.04.2016 Shift : 3

Ans : (b) Let the number be x, then-

$$x = \sqrt{x} + 30$$

$$x - 30 = \sqrt{x}$$

On squaring in both side-

$$(x - 30)^2 = (\sqrt{x})^2$$

$$x^2 + 900 - 60x = x$$

$$x^2 - 60x - x + 900 = 0$$

$$x^2 - 61x + 900 = 0$$

$$x^2 - 36x - 25x + 900 = 0$$

$$x(x - 36) - 25(x - 36) = 0$$

$$(x - 36)(x - 25) = 0$$

$$x - 36 = 0 \text{ or } x - 25 = 0$$

$$x = 36 \text{ or } x = 25$$

25 is not more than its square root, which does not follow the condition.

Hence, the required number will be $x = 36$.

268. What smallest number should be added to the sum of squares of 15 and 14, so that the resulting number is a perfect square?

- (a) 17 (b) 20 (c) 11 (d) 9

RRB NTPC 29.03.2016 Shift : 1

Ans : (b) $15^2 + 14^2 = 225 + 196 = 421$

Let the number to added be x,

$$421 + x = 441$$

$$\Rightarrow x = 441 - 421 = 20$$

Hence, the required number = 20

269. Calculate the sum of squares of numbers from 1 to 9.

- (a) 284 (b) 285
(c) 385 (d) 380

RRB NTPC 27.04.2016 Shift : 1

Ans : (b) The sum of squares of first n numbers

$$= \frac{n(n+1)(2n+1)}{6}$$

∴ The sum of squares from 1 to 9 will be-

$$= \frac{9(9+1)(18+1)}{6} = \frac{9 \times 10 \times 19}{6} = 285$$

270. Calculate the sum of squares of number from 1 to 10.

- (a) 384 (b) 285
(c) 385 (d) 380

RRB NTPC 30.04.2016 Shift : 2

Ans : (c) The sum of squares of first n numbers

$$= \frac{n(n+1)(2n+1)}{6}$$

The sum of squares of the numbers from 1 to 10 will be-

$$= \frac{10(10+1)(20+1)}{6} = \frac{10 \times 11 \times 21}{6} = 385$$

271. Find the least number which should be added to 7864, to make it a perfect square.

- (a) 61 (b) 57
(c) 71 (d) 79

RRB Group-D - 11/12/2018 (Shift-III)

Ans : (b) Adding 57 to 7864, gives 7921 which is a perfect square of 89. Hence, it is clear that adding 57 to 7864 will make the number a perfect square.

272. The number 4050 becomes a perfect square when multiplying by a positive integer. Find the square root of the number.

- (a) 95 (b) 80
(c) 90 (d) 85

RRB Group-D - 01/10/2018 (Shift-III)

Ans : (c) ∵ $4050 = 2 \times 3 \times 3 \times 3 \times 3 \times 5 \times 5$

Hence, number 4050 becomes a perfect square when multiplied by 2 = $4050 \times 2 = 8100$

∴ The required square root of the number 8100 = $2 \times 3 \times 3 \times 5 = 90$

273. Which of the following numbers is a perfect square?

- (a) 0.09 (b) 8.1
(c) 0.025 (d) All

RRB NTPC 29.03.2016 Shift : 2

Ans : (a) $0.09 = (0.3)^2$

Hence, only 0.09 is a perfect square number.

Type - 7

274. Find the sum of prime factors of $9^6 \times 12^4 \times 7^7$

- (a) 13 (b) 12
(c) 14 (d) 11

RRB Group-D 26/08/2022 (Shift-III)

Ans. (b) : $9^6 \times 12^4 \times 7^7$

$$= 3^{12} \times 3^4 \times 2^8 \times 7^7$$

$$= 3^{16} \times 2^8 \times 7^7$$

Sum of prime factors

$$= 3+2+7 = 12$$

275. For any natural number n, $6^n - 5^n$ always ends with ;

- (a) 7 (b) 1
(c) 5 (d) 3

RRB NTPC 28.12.2020 (Shift-II) Stage Ist

Ans. (b) : The unit value of $6^n - 5^n$ for any natural number 'n' will always be 1 because 6 can be any natural number in the power that units number in the power of 5 has its unit digit as 5.

276. What is the total number of odd and even divisors of 120, respectively?

- (a) 12,4 (b) 16,0
(c) 4,12 (d) 8,8

RRB NTPC 01.02.2021 (Shift-II) Stage I

Ans. (c) : Divisors of 120-

1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120

Number of even divisors - 12,

Number of odd divisors - 4

277. If the sum of five consecutive multiples of 2 is 660, then find the largest number.

- (a) 162 (b) 130
(c) 125 (d) 136

RRB NTPC 15.02.2021 (Shift-II) Stage Ist

Ans. (d) : Let five consecutive multiple of 2 -

$2x, 2x+2, 2x+4, 2x+6, 2x+8$

According to the question,

$$2x + 2x + 2 + 2x + 4 + 2x + 6 + 2x + 8 = 660$$

$$10x + 20 = 660$$

$$10x = 640$$

$$x = 64$$

Hence, largest number = $2x + 8 = 2 \times 64 + 8$

$$= 128 + 8$$

$$= 136$$

278. How many factors of $2^7 \times 3^4 \times 5^3 \times 7$ are even ?

- (a) 40 (b) 280
(c) 320 (d) 84

RRB NTPC 31.01.2021 (Shift-I) Stage Ist

RRB NTPC 14.03.2021 (Shift-I) Stage Ist

Ans. (b) : $2^7 \times 3^4 \times 5^3 \times 7$ Number of factors.

$$= (7+1)(4+1)(3+1)(1+1)$$

$$= 8 \times 5 \times 4 \times 2$$

$$= 320$$

∴ Number of even factors = 320 - total no. of odd factors.

$$= 320 - \{(4+1)(3+1)(1+1)\}$$

$$= 320 - \{5 \times 4 \times 2\}$$

$$= 320 - 40$$

$$= 280$$

279. Find the digit in the unit's place of $124^n + 124^{(n+1)}$, where n is any whole number.

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

RRB NTPC 17.02.2021 (Shift-II) Stage Ist

Ans. (d) : $124^n + 124^{(n+1)}$
 On putting $n=1$
 $= 124 + (124)^2$
 For unit digit $4 + 6 = 10$
 Hence, It is clear that the digit come in the unit place will be '0'.

280. What is the unit digit in the following product?
 $91 \times 92 \times 93 \times \dots \times 99$
 (a) 2 (b) 1 (c) 4 (d) 0
RRB NTPC 09.02.2021 (Shift-II) Stage Ist

Ans. (d) : $\because 91 \times 92 \times 93 \times 94 \times 95 \times 96 \times 97 \times 98 \times 99$
 It is clear that multiplying by taking unit digits of all the numbers will give '0' i.e. where 2×5 comes then its unit digit is always zero.

281. Find the number of factors of 4200.
 (a) 48 (b) 56 (c) 64 (d) 46
RRB NTPC 26.07.2021 (Shift-II) Stage Ist

Ans. (a) : $4200 = 2 \times 2 \times 2 \times 5 \times 5 \times 3 \times 7$
 $= 2^3 \times 5^2 \times 3^1 \times 7^1$
 The number of factors = $(3+1) \times (2+1) \times (1+1) \times (1+1)$
 $= 4 \times 3 \times 2 \times 2$
 $= 48$

282. How many factors does the number 12288 have?
 (a) 24 (b) 26
 (c) 28 (d) 22
RRB NTPC 23.07.2021 (Shift-I) Stage Ist

Ans. (b) : $12288 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 2^{12} \times 3^1$
 Hence numbers of factors = $(12 + 1) \times (1 + 1)$
 $= 13 \times 2$
 $= 26$

283. If a positive number N, when divided by 5 leaves a remainder 3, then the unit's place digit of N is?
 (a) 0 or 5 (b) 0 or 2
 (c) 3 or 8 (d) 1 or 5
RRB NTPC 25.01.2021 (Shift-I) Stage Ist

Ans. (c) : Required positive number
 $= 5K+3$ ($\because K = 0, 1, 2, \dots$)
 $= 5 \times 0 + 3 = 3$ (On putting $K = 0$)
 $= 5 \times 1 + 3 = 8$ (On putting $K = 1$)
 Hence, unit digit of $N = 3$ or 8

284. The unit digit in $4 \times 38 \times 764 \times 1256$ is :
 (a) 6 (b) 8
 (c) 4 (d) 5
RRB NTPC 28.12.2020 (Shift-I) Stage Ist

Ans. (b) :
 $4 \times 38 \times 764 \times 1256$
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$
 $4 \times 8 \times 4 \times 6$
 $= 32 \times 24$
 $\downarrow \quad \downarrow$
 $= 2 \times 4$
 Hence unit digit = 8

285. Unit digit of $(1373)^{36} - (1442)^{20}$ is -
 (a) 2 (b) 4
 (c) 5 (d) 3
RRB ALP CBT-2 Physics & Maths 22-01-2019 (Shift-I)

Ans. (c) : $(1373)^{36} - (1442)^{20}$
 $= (3)^{36} - (2)^{20}$
 $= (3)^{9 \times 4} - (2)^{5 \times 4}$
 $= (3)^4 - (2)^4$
 $= 81 - 16$
 $= 65$
 $= 5$

286. How many of the factors of 256 are perfect squares?
 (a) 5 (b) 3
 (c) 6 (d) 4
RRB ALP & Tec. (20-08-18 Shift-II)

Ans : (a) Perfect square factors of 256 = 1, 4, 16, 64, 256
 Hence, the required number of perfect square factors = 5

287. Which of these numbers has the highest number of divisors?
 (a) 156 (b) 240
 (c) 172 (d) 200
RRB JE - 23/05/2019 (Shift-I)

Ans : (b) From options—
 $156 = 2^2 \times 3^1 \times 13^1 = (2+1)(1+1)(1+1) = 12$ (divisor)
 $240 = 2^4 \times 3^1 \times 5^1 = (4+1)(1+1)(1+1) = 20$ (divisor)
 $172 = 2^2 \times 43^1 = (2+1)(1+1) = 6$ (divisor)
 $200 = 2^3 \times 5^2 = (3+1)(2+1) = 12$ (divisor)
 Hence, It is clear that the number of the divisors of 240 is highest.

288. Find the unit digit in given factor of $(3451)^{51} \times (531)^{43}$.
 (a) 6 (b) 4
 (c) 1 (d) 9
RRB RPF-SI -11/01/2019 (Shift-I)

Ans : (c) The given expression is $(3451)^{51} \times (531)^{43}$
 According to the question it is clear that the unit digit of 3451 and 531 is 1, so the unit digit of their product will also be 1.

289. How many multiples of $2^8 \times 3^2 \times 5^3 \times 7^5$ are even numbers?
 (a) 288 (b) 168
 (c) 576 (d) 464
RRB Group-D - 06/12/2018 (Shift-II)

Ans. (c) : The number of factors of $2^8 \times 3^2 \times 5^3 \times 7^5 = (8+1)(2+1)(3+1)(5+1) = 648$
 \therefore The number of even factors (multiples) = $648 -$ The number of total odd factors
 $= 648 - \{(2+1)(3+1)(5+1)\}$
 $= 648 - \{3 \times 4 \times 6\}$
 $= 648 - 72 = 576$

290. How many factors of 729 are perfect squares?
 (a) 5 (b) 4
 (c) 3 (d) 2
RRB Group-D - 01/10/2018 (Shift-I)

Ans. (c) : The factors of 729,

| | |
|---|-----|
| 3 | 729 |
| 3 | 243 |
| 3 | 81 |
| 3 | 27 |
| 3 | 9 |
| 3 | 3 |
| | 1 |

Perfect squares = $\overline{3 \times 3} \times \overline{3 \times 3} \times \overline{3 \times 3}$

Hence, total 3 factors of 729 (9,9,9) are perfect squares.

291. How many multiples of $2^9 \times 3^5 \times 5^4 \times 7^6$ are odd numbers?

- (a) 288 (b) 144
(c) 210 (d) 140

RRB Group-D – 06/12/2018 (Shift-III)

Ans. (c) : The required odd multiple number

$$= (5+1) \times (4+1) \times (6+1) \\ = 6 \times 5 \times 7 = 210$$

292. Find the last digit of 213^6 ?

- (a) 6 (b) 3
(c) 7 (d) 9

RRB Group-D – 05/12/2018 (Shift-II)

Ans. (d) The unit digit of 213^6

$$213^6 = (213^4 \times 213^2) \\ 1 \times 9 = 9$$

293. The smallest natural number, by which 216 should be multiplied, so that the number of factors of the product is odd?

- (a) 4 (b) 6
(c) 12 (d) 8

RRB Group-D – 11/12/2018 (Shift-I)

Ans. (b)

The number of multiples of $(216 = 2^3 \times 3^3)$ is:
 $= (3+1)(3+1) = 4 \times 4 = 16$ (even)

The smallest natural number, by which 216 should be multiplied, so that the number of factors of the product is odd = 6

∴ Required number of multiples in $216 \times 6 = 2^4 \times 3^4$
 $= (4+1)(4+1) = 25$

294. What is the unit digit of $[4523^{1632} \times 2224^{1632} \times 3225^{1632}]$

- (a) 1 (b) 0
(c) 4 (d) 5

RRB NTPC 18.01.2017 Shift : 3

Ans : (b) $[(4523)^{1632} \times (2224)^{1632} \times (3225)^{1632}]$

$$\Rightarrow (3)^4 \times (4)^4 \times (5)^4$$

$$81 \times 256 \times 625$$

$$1 \times 6 \times 5$$

$$30 \Rightarrow \boxed{0}$$

295. Calculate the total prime factors in the product of $\{(8)^{10} \times (9)^7 \times 7^8\}$

- (a) 45 (b) 54
(c) 52 (d) 65

RRB NTPC 18.04.2016 Shift : 2

Ans : (c) $(8)^{10} \times (9)^7 \times 7^8$

$$= (2^3)^{10} \times (3^2)^7 \times (7)^8 \\ = 2^{30} \times 3^{14} \times 7^8$$

Hence, the total prime factors = $30+14+8 = 52$

296. Calculate the total prime factors in the product of $\{(16)^7 \times (27)^6 \times 5^9\}$

- (a) 28 (b) 43
(c) 55 (d) 56

RRB NTPC 16.04.2016 Shift : 2

Ans : (c) Total prime factors $\{(16)^7 \times (27)^6 \times 5^9\}$

$$= (2^4)^7 \times (3^3)^6 \times 5^9 \\ = 2^{28} \times 3^{18} \times 5^9 \\ = 28 + 18 + 9 = 55$$

297. Find the unit digit in the product of $(4211)^{102} \times (361)^{52}$

- (a) 3 (b) 1
(c) 4 (d) 7

RRB NTPC 16.04.2016 Shift : 3

Ans : (b)

The required unit digit in $(4211)^{102} \times (361)^{52}$
 $\Rightarrow (1)^{102} \times (1)^{52} = 1 \times 1 = 1$

298. Find the unit digit in the following

$$(1234)^{102} + (1234)^{103}$$

- (a) 2 (b) 4
(c) 0 (d) 1

RRB NTPC 28.04.2016 Shift : 2

Ans : (c) Given expression: $(1234)^{102} + (1234)^{103}$

The unit digit,

$$= (4)^{102} + (4)^{103} \\ = (4^2)^{51} + (4^2)^{51} \times 4^1 \\ = (16)^{51} + (16)^{51} \times 4^1 \\ = 6 + 6 \times 4 \\ = 6 + 24 = 30$$

Hence, the unit digit will be 0.

299. How many factors of 512 are perfect squares?

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

RRB Group-D – 28/09/2018 (Shift-I)

Ans : (d) The factors of 512

$$= 1, 2, 4, 8, 16, 32, 64, 128, 256, 512$$

In which = 1, 4, 16, 64, 256 are perfect squares

So, the total number of perfect squares factors is 5.

300. Which is the smallest positive integer or natural number, when divides 1920 so that the number of factors of quotient is odd?

- (a) 40 (b) 10
(c) 20 (d) 30

RRB Group-D – 12/12/2018 (Shift-I)

Ans. (d) From options,

Number of factors in $\frac{1920}{40} = 48 = 2^4 \times 3$

is $(4+1)(1+1) = 10$ (Even)

Number of factors in $\frac{1920}{10} = 192 = 2^6 \times 3$

is $(6+1)(1+1) = 14$ (Even)

Number of factors in $\frac{1920}{20} = 96 = 2^5 \times 3$

is $(5+1)(1+1) = 12$ (Even)

Number of factors in $\frac{1920}{30} = 64 = 2^6$

is $(6+1) = 7$ (Odd)

Hence, option (d) will be required answer.

301. How many factors of the number $2^{10} \times 3^6 \times 5^3 \times 7^5$ are divisible by 2160?

- (a) 180 (b) 336
(c) 504 (d) 560

RRB Group-D – 11/12/2018 (Shift-III)

Ans : (c) Factors of 2160 = $2^4 \times 3^3 \times 5^1$

Let the total factors are n.

$$n = \frac{2^{10} \times 3^6 \times 5^3 \times 7^5}{2^4 \times 3^3 \times 5^1}$$

$$n = 2^6 \times 3^3 \times 5^2 \times 7^5$$

So, the total number of factors = $(6+1)(3+1)(2+1)(5+1)$
= $7 \times 4 \times 3 \times 6 = 504$

Type - 8

302. What is the place value of 5 in the number 56789214?

- (a) 5×10^6 (b) 5×10^4
(c) 5×10^7 (d) 5×10^5

RRB NTPC 29.01.2021 (Shift-II) Stage I

Ans. (c) : The place value of 5 in 56789214 –

56789214

$\rightarrow 5 \times 10^7$

303. Find the sum of the place value and the face value of 7 in the number 53736.

- (a) 77 (b) 707
(c) 770 (d) 777

RRB NTPC 29.01.2021 (Shift-II) Stage Ist

Ans. (b) : The place value and the face value of 7 in the number 53736.

Place value of 7 = 700

Face value of 7 = 7

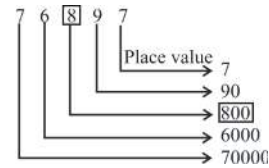
Required sum = $700 + 7$
= 707

304. In the number 76897, what is the place value of 8?

- (a) 8 (b) 8000
(c) 800 (d) 80

RRB NTPC 09.03.2021 (Shift-II) Stage Ist

Ans. (c) :



Hence, place value of 8 in 76897 will be 800.

305. The face value of 8 in 758639 is :

- (a) 8000 (b) 80
(c) 800 (d) 8

RRB NTPC 25.01.2021 (Shift-II) Stage Ist

Ans. (d) : In the given number = 758639

The face value of 8 = 8

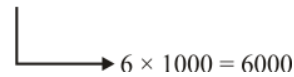
306. Find the difference of the place and face values of 6 in 516372

- (a) 5998 (b) 6698
(c) 5394 (d) 5994

RRB NTPC 25.01.2021 (Shift-II) Stage Ist

Ans. (d) : The place values of 6 in 516372 –

5 1 6 3 7 2



the face values of 6 = 6

Required difference = $6000 - 6$
= 5994

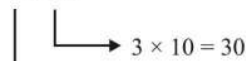
307. The sum of the place values of 3 in 3636 is:

- (a) 330 (b) 3030
(c) 3 (d) 3003

RRB NTPC 25.01.2021 (Shift-II) Stage Ist

Ans. (b) : The place value of 3 in 3636.

3 6 3 6



Sum of place values of 3 = $3000 + 30$

= 3030

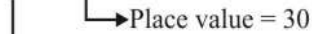
308. The difference between the place values of 2 and 3 in the number 128935 is:

- (a) 300 (b) 19970
(c) 20000 (d) 30

RRB NTPC 02.03.2021 (Shift-I) Stage Ist

Ans. (b) :

1 2 8 9 3 5



Required difference = $20000 - 30 = 19970$

309. The sum of the place values of 9 in 96961 is:

- (a) 9000 (b) 18
(c) 9090 (d) 90900

RRB NTPC 19.01.2021 (Shift-I) Stage Ist

Ans. (d) : Sum of the place value of 9 in number 96961

= $90000 + 900$

= 90900

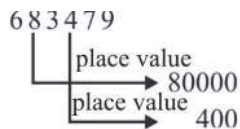
Hence, option (d) is correct.

310. Find the difference between the place values of 8 and 4 in the number 683479.

- (a) 7 (b) 80000
(c) 79600 (d) 76600

RRB NTPC 04.03.2021 (Shift-II) Stage Ist

Ans. (c) :



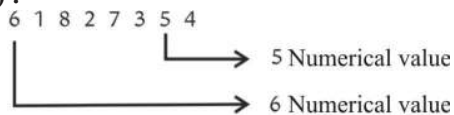
Hence, required difference = $80000 - 4000 = 79600$

311. Find the sum of the face values of 6 and 5 in 61827354

- (a) 6000300 (b) 30
(c) 40 (d) 11

RRB NTPC 12.01.2021 (Shift-II) Stage Ist

Ans. (d) :



Required sum = $6 + 5 = 11$

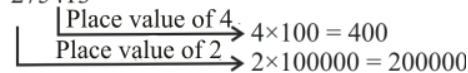
312. The difference between the place values of 2 and 4 in the number 275413 is

- (a) 196600 (b) 2
(c) 199600 (d) -2

RRB NTPC 05.03.2021 (Shift-I) Stage Ist

Ans. (c) :

Number 275413



Difference between the place value of 2 and 4
= $200000 - 400 = 199600$

313. The digit of hundred's place value of 19! is:

- (a) 0 (b) 9
(c) 4 (d) 1

RRB NTPC 12.01.2021 (Shift-I) Stage Ist

Ans. (a) : $19! = 19 \times 18 \times 17 \times 16 \times \dots \times 1$

Number of 5 in $19!$ = 3

So number of zeros = 3

$19! = \dots\dots\dots 000 \rightarrow 100^{\text{th}}$ number

Hence the value of 100^{th} place is 0.

314. What is the difference between the place and face values of '5' in the number 3675149?

- (a) 5000 (b) 4995
(c) 495 (d) 4990

RRB JE - 23/05/2019 (Shift-I)

Ans : (b) The place value of 5 in the number 3675149
= $5 \times 1000 = 5000$

And the face value of 5 = 5

Required difference = $5000 - 5 = 4995$

315. What is the place value of 8 in 634785?

- (a) 8 (b) 80
(c) 800 (d) 80,000

RRB RPF Constable -20/01/2019 (Shift-I)

Ans : (b) The place value of 8 in 634785 = $8 \times 10 = 80$

316. Find the sum of the face value and place value of 6 in the number 206743?

- (a) 6749 (b) 12743
(c) 6006 (d) 12

RRB Group-D - 28/11/2018 (Shift-I)

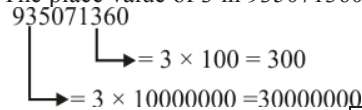
Ans : (c) The face value of 6 in the number 206743 = 6
And the place value of 6 = $6 \times 1000 = 6000$
The required sum (Face value + Place value) = $6 + 6000 = 6006$

317. The difference between two place values of 3 in 935071360 is-

- (a) 29999700 (b) 29999701
(c) 2999600 (d) 29999400

RRB Group-D - 23/10/2018 (Shift-I)

Ans. (a) : The place value of 3 in 935071360,



The required difference = $30000000 - 300 = 29999700$

318. Calculate the sum of the face value and the place value of 7 in the number 3728456.

- (a) 700007 (b) 0
(c) 7 (d) 700000

RRB Group-D - 01/10/2018 (Shift-I)

Ans. (a) : The place value of 7 = $7 \times 100000 = 700000$
The face value of 7 = 7.

Hence, the required sum = $700000 + 7 = 700007$

319. Find the face value of 4 in 145.390.

- (a) 40,000 (b) 4
(c) 140,000 (d) 45

RRB NTPC 04.04.2016 Shift : 2

Ans : (b) The face value of any digit is the same digit.
In the number 145.390 the face value of 4 = 4

320. Find the difference between the place value and face value of the digit 9 in the number 229301?

- (a) 9292 (b) 8991
(c) 0 (d) 220

RRB NTPC 03.04.2016 Shift : 2

Ans : (b) The place value of 9 in the number 229301 = $9 \times 1000 = 9000$

And the face value of 9 = 9

Hence, the required difference = $9000 - 9 = 8991$

321. What is the difference between the place value and face value of 3 in 273965?

- (a) 2035 (b) 3962
(c) 2997 (d) 0

RRB ALP & Tec. (31-08-18 Shift-II)

Ans. (c) : In the number 273965,
The place value of 3 = $3 \times 1000 = 3000$
And the face value = 3

Hence, the required difference = $3000 - 3 = 2997$

322. 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 & Tec. (10-08-18 Shift-II)

Ans : (d) The given number = 833749502

The place value of 2 = 2

The place value of 4 = $4 \times 10000 = 40000$

Hence, the required difference = $40000 - 2 = 39998$

Type - 9

323. By how much is $\frac{1}{6}$ th of 432 smaller than $\frac{3}{4}$ th of 216?

- (a) -90 (b) 72
(c) 90 (d) 162

RRB NTPC 15.03.2021 (Shift-II) Stage Ist

Ans. (c) : According to the question-

$$\frac{1}{6} \text{ part of } 432 = 432 \times \frac{1}{6} = 72$$

$$\text{and } \frac{3}{4} \text{ part of } 216 = 216 \times \frac{3}{4} = 162$$

$$\text{Required difference} = 162 - 72 = 90$$

324. Terry consumes 1700 mL of milk every day. How many litres of milk will she consume in 5 weeks?

- (a) 59 L (b) 60 L
(c) 58.5 L (d) 59.5 L

RRB NTPC 09.02.2021 (Shift-II) Stage I

Ans. (d) :

$$\because \text{Terry consumes in 1 day} = 1700 \text{ mL}$$

$$\begin{aligned} \therefore \text{In 5 weeks} &= 35 \text{ days} = \frac{1700 \times 35}{1000} \\ &= \frac{59500}{1000} \text{ L} \\ &= 59.5 \text{ L} \end{aligned}$$

325. Mohan earns ₹60 on first day and spends ₹50 on the second day. He again earns ₹60 on the third day and spends ₹50 on the fourth day and so on. On which day will he have ₹200 with him before spending?

- (a) 10th (b) 14th
(c) 28th (d) 29th

RRB NTPC 24.07.2021 (Shift-II) Stage Ist

Ans. (d) : Mohan earns on the first day = ₹60 and spends on the second day = ₹50

$$\text{Thus, in 2 days Mohan saves} = ₹10$$

Hence, Mohan saves in 28 days = ₹140

$$\text{Mohan will earn on 29th day} = ₹60$$

$$\text{So, On the 29th day Mohan has} = 140 + 60 = ₹200$$

326. In a farmer's house, there are chickens and goats. The total number of their heads is 42 and the total number of their legs is 138. Find the number of chickens.

- (a) 15 (b) 18
(c) 20 (d) 22

RRB NTPC 01.02.2021 (Shift-I) Stage Ist

Ans. (a) : Let the number of chickens = x

$$\text{Number of goats} = y$$

According to the question,

$$x + y = 42 \quad \text{(i)}$$

$$2x + 4y = 138 \quad \text{(ii)}$$

On solving the equation (i) \times 4 and (ii)

$$4x + 4y = 168$$

$$2x + 4y = 138$$

$$2x = 30$$

$$x = 15$$

Hence, the number of chickens = x = 15

327. Two bus tickets from city P to Q and three tickets from city P to R cost ₹99, but three tickets from city P to Q and two tickets from city P to R cost ₹91. What are the respective fares from city P to Q and from city P to R.

- (a) ₹23, ₹15 (b) ₹51, ₹32
(c) ₹15, ₹23 (d) ₹32, ₹51

RRB NTPC 31.01.2021 (Shift-I) Stage Ist

Ans. (c) : Let the fares from city P to Q = ₹x

and the fares from city P to R = ₹y

According to the question,

$$2x + 3y = 99 \quad \text{...(i)}$$

$$3x + 2y = 91 \quad \text{...(ii)}$$

On multiplying by 3 in equation (i) and 2 in equation (ii)

$$6x + 9y = 297 \quad \text{...(iii)}$$

$$6x + 4y = 182 \quad \text{...(iv)}$$

From equation (iii) & (iv) we have -

$$5y = 115$$

$$y = ₹23$$

On putting the value of y in equation (i),

$$2x + 3 \times 23 = 99$$

$$2x + 69 = 99$$

$$2x = 99 - 69$$

$$x = \frac{30}{2}$$

$$x = ₹15$$

Hence the fares from city P to Q and the fares from city P to R are ₹15, ₹23 respectively.

328. There are 40 persons in a palace. If every person shakes hands with every other person, what will be the total number of handshakes?

- (a) 750 (b) 780
(c) 800 (d) 790

RRB NTPC 21.01.2021 (Shift-I) Stage Ist

Ans. (b) : Total number of handshakes = $\frac{n(n-1)}{2}$

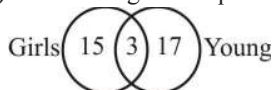
$$\begin{aligned} &= \frac{40(40-1)}{2} \\ &= \frac{40 \times 39}{2} \\ &= 20 \times 39 \\ &= 780 \end{aligned}$$

329. In a group of 35 persons, 20 are young and 18 are girls. How many young girls are there in the group?

- (a) 1 (b) 3
(c) 18 (d) 2

RRB NTPC 17.01.2021 (Shift-II) Stage Ist

Ans. (b) : According to the question,



$$\begin{aligned} \text{Number of young girls in the group} &= (20+18) - 35 \\ &= 38 - 35 = 3 \end{aligned}$$

330. X, Y and Z together earn ₹ 2,400/- in 15 days, X and Y together earn ₹ 1,840/- in 16 days. Y and Z together earn ₹ 1,530/- in 18 days. What is the daily earning (in ₹) of Y?

- (a) ₹50 (b) ₹40
(c) ₹60 (d) ₹30

RRB NTPC 05.03.2021 (Shift-I) Stage Ist

Ans. (b) :

$$\text{Amount earned by X, Y and Z in 1 day} = \frac{2400}{15} = 160$$

$$\text{Amount earned by X, Y and Z in 1 day} = \frac{1840}{16} = 115$$

$$\text{Amount earned by Y and Z in 1 day} = \frac{1530}{18} = 85$$

$$\begin{aligned} \text{Daily earning of Y} &= (\text{Daily earning of X and Y together}) + (\text{Daily earning of Y and Z together}) - (\text{Daily earning by X, Y and Z together}) \\ &= 115 + 85 - 160 \\ &= 40 \end{aligned}$$

331. The remainder in the expression $27\frac{3}{4}$ is:

- (a) 6 (b) 4
(c) 3 (d) 8

RRB NTPC 15.02.2021 (Shift-I) Stage Ist

Ans. (c) : In the given expression

$$\begin{aligned} \text{Dividend} &= \text{quotient} \times \text{divisor} + \text{remainder} \\ &= 27 \times 4 + 3 \end{aligned}$$

$$\therefore \text{Remainder} = 3$$

332. A maximum of how many pieces of exact 17 cm length can be cut from a 960 cm long rod?

- (a) 60 (b) 58
(c) 54 (d) 56

RRB NTPC 08.02.2021 (Shift-I) Stage Ist

Ans. (d) : According to question

$$\text{Number of pieces} = \frac{960}{17} = 56 + \frac{8}{17}$$

Hence, number of pieces of exact 17 cm length will be 56.

333. If $\frac{3}{11} < \frac{x}{3} < \frac{7}{11}$, which of the following can be value of 'x'?

- (a) 0.5 (b) 1
(c) 2 (d) 3

RRB JE - 23/05/2019 (Shift-I)

Ans : (b) From options,

When X = 0.5 then $0.272 < 0.166 < 0.636$ (False)

When X = 1 then $0.272 < 0.333 < 0.636$ (True)

When X = 2 then $0.272 < 0.666 < 0.636$ (False)

When X = 3 then $0.272 < 1 < 0.636$ (False)

Hence, It is clear that the value of x will be 1.

334. If the first number and the second number is 25% and 50% more than the third number respectively, find the ratio between the first and second number.

- (a) 5 : 6 (b) 2 : 1
(c) 6 : 5 (d) 1 : 2

RRB JE - 27/05/2019 (Shift-I)

Ans : (a) Let the third number be 100.

Then according to the question the first number = 125

And the second number = 150

Hence, required ratio = First number : Second number = 125 : 150

$$= \boxed{5:6}$$

335. Solve: $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots$

- (a) 2 (b) 1/50
(c) 3 (d) 1/22

RRB JE - 23/05/2019 (Shift-I)

Ans : (a)

$$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots$$

This is a geometrical progression-

$$a = 1, \quad r = \frac{1}{2}$$

Let the sum be S.

$$S = \frac{a}{1-r}, \quad S_{\infty} = \frac{1}{1-\frac{1}{2}}$$

$$S_{\infty} = \frac{1}{\frac{1}{2}} = 2 \quad \boxed{S_{\infty} = 2}$$

336. In a school picnic group, $\frac{2}{9}$ th part were adults and the number of children was more than adults by 95. How many children were present there?

- (a) 95 (b) 133
(c) 190 (d) 103

RRB JE - 27/06/2019 (Shift-I)

Ans : (b) Let the total number of people in the group = x

$$\text{The number of adults} = x \times \frac{2}{9} = \frac{2x}{9}$$

$$\text{The number of children} = x - \frac{2x}{9} = \frac{9x - 2x}{9} = \frac{7x}{9}$$

$$\frac{7x}{9} - \frac{2x}{9} = 95$$

$$\frac{7x - 2x}{9} = 95$$

$$\frac{5x}{9} = 95$$

$$x = 171$$

$$\text{Hence, the number of children} = \frac{7x}{9} = \frac{7}{9} \times 171 = 133$$

337. Find the value of $52 - |8 - 20| =$

- (a) 45 (b) 40
(c) 65 (d) 64

RRB RPF Constable -18/01/2019 (Shift-I)

Ans : (b) The given value = $52 - |8 - 20|$
= $52 - |-12|$

$|-A| = A$ (The value of Mod is always +ve.)

Hence, the required value = $52 - 12 = 40$

338. If one dozen of apples weigh 1.8 kg, then find the number of apples of three boxes whose total weight is 23.25 kg.

- (a) 280 (b) 155
(c) 465 (d) 215

RRB RPF-SI -13/01/2019 (Shift-I)

Ans : (b) Total weight = 23.25 kg

One apples's weight = $\frac{1.8}{12}$ kg

The required number of apples,

$$= \frac{\text{Total weight}}{\text{1 apple's weight}} = \frac{23.25 \times 12}{1.8} = 155$$

Number of apples in the box = 155

339. Pick out the set that forms the factors of 36.

- (a) (2, 3, 4, 6, 9) (b) (2, 3, 4, 6)
(c) (2, 3, 4, 6, 9, 12, 18) (d) (2, 3, 4, 6, 9, 12)

RRB JE - 27/05/2019 (Shift-III)

Ans : (c) All the factors of 36 = 1, 2, 3, 4, 6, 9, 12, 18, 36
Hence, the required set that is formed by the factors of 36 will be = (2, 3, 4, 6, 9, 12, 18)

340. The square of a number is 3 more than twice the number. What is the possible number.

- (a) 1 or 3 (b) 1 or -3
(c) -1 or -3 (d) -1 or 3

RRB Group-D - 15/10/2018 (Shift-I)

Ans : (d) Let the number be x

According to the question,

$$x^2 = 2x + 3$$

$$x^2 - 2x - 3 = 0$$

$$x^2 - 3x + x - 3 = 0$$

$$x(x - 3) + 1(x - 3) = 0$$

$$(x - 3)(x + 1) = 0$$

$$x - 3 = 0$$

$$x = 3$$

$$x + 1 = 0$$

$$x = -1$$

Hence, the possible number is -1 or 3.

341. $\left(\frac{3}{10} + \frac{8}{15}\right)$ is directly proportional to-

- (a) $\frac{11}{10}$ (b) $\frac{11}{15}$
(c) $\frac{6}{5}$ (d) $\frac{3}{15}$

RRB Group-D - 02/11/2018 (Shift-I)

Ans. (c) $\left(\frac{3}{10} + \frac{8}{15}\right)$

$$= \frac{9+16}{30} = \frac{25}{30} = \frac{5}{6}$$

$\frac{5}{6}$ is directly proportional to $\frac{1}{\frac{5}{6}} = \frac{6}{5}$

342. Subtract 64.37 out of 1000.03 and add the resultant obtained from it to the sum of 3.4 and 7.56. What will be its value?

- (a) 948.62 (b) 944.62
(c) 945.62 (d) 946.62

RRB Group-D - 08/10/2018 (Shift-III)

Ans : (d) According to the question,

$$1000.03 - 64.37 = 935.66$$

And

$$935.66 + (3.4 + 7.56) = 935.66 + 10.96 = 946.62$$

343. Seema got ₹ 50 from her father and purchased toffee for ₹ 15. Her mother gave her ₹ 30 but her brother took ₹ 42 from her. How much money did she have left?

- (a) ₹ 23 (b) ₹ 24
(c) ₹ 20 (d) ₹ 25

RRB Group-D - 23/09/2018 (Shift-II)

Ans : (a) Total sum of money that Seema have left

$$= 50 - 15 + 30 - 42 = 80 - 57 = ₹ 23$$

344. ₹ 150 of Amit's Pocket money was spent on a pair of shoes and ₹ 75 on a watch. The total amount spent was three-fourth of his total pocket money. What was the amount received by Amit as pocket money?

- (a) ₹ 300 (b) ₹ 400
(c) ₹ 375 (d) ₹ 250

RRB ALP CBT-2 Electrician 22-01-2019 (Shift-I)

Ans. (a) : Amount spent on shoes = ₹ 150

Amount spent on watch = ₹ 75

Let Amit's pocket money = ₹ x

According to the question,

$$\frac{3x}{4} = 150 + 75$$

$$3x = 4 \times 225$$

$$x = \frac{900}{3}$$

$$x = ₹ 300$$

So, Amit got the amount for pocket money = ₹ 300

345. Geeta weighs 11.235 kg. Her sister weighs 1.4 times her weight. Find the total weight of both.

- (a) 15.729 kg (b) 25.964 kg
(c) 26.964 kg (d) 28.964 kg

RRB NTPC 29.03.2016 Shift : 1

Ans : (c) Geeta's weight = 11.235 kg

∴ The weight of Geeta's sister

$$= 11.235 \times 1.4 = 15.729 \text{ kg}$$

The total weight of both of them

$$= 11.235 + 15.729 = 26.964 \text{ kg}$$