Directions (1-2): In each of these questions, one term in the given number series is wrong. Find out the wrong term.

1) 6, 4, 8, 24, 58, 1 70
   a) 8  b) 58  c) 24  
   d) 4  e) None of these

2) 4, 11, 37, 153, 773, 4633
   a) 624  b) 773  c) 811  
   d) 589  e) None of these

Directions (3-5): What should come at the place of question mark in the following number series?

3) 12, 24, 8, 32, 6.4, ?
   a) 38.4  b) 24  c) 36.4  
   d) 28.2  e) None of these

4) 2, 15, 41, 80, 132, ?
   a) 207  b) 211  c) 193  
   d) 197  e) None of these

5) 4, 9, 20, 39, 68, ?
   a) 98  b) 109  c) 124  
   d) 108  e) None of these

Directions (6-8): What value should come at the place of question mark in the following questions?

6) 667.664 + 7666.464 – 563.24 + 48.22 =?
   a) 8124.26  b) 5942.26  
   c) 6842.14  d) 7819.108  e) None of these

7) 42% of 3200 – 24% of 1800 + 20% of 600 =?
   a) 1060  b) 1032  c) 1024  
   d) 1004  e) None of these

8) 1/24 x 5760 + 25% of 6000 – 450 + 650 =?
   a) 1510  b) 1940  c) 1260  
   d) 1750  e) None of these

Directions (9-10): What approximate value should come at the place of question mark in the following questions?

9) √3363.99 x 5.8 + √676.012 x 6.9 =? – 456.88
   a) 642  b) 987  c) 769  
   d) 865  e) 658

10) 49.99 x 2.005 – 5.9 x 43.99 + 6.99 x 52.2 =?
    a) 160  b) 200  c) 150  
    d) 280  e) 120

Directions (11-15): In each of these questions, two equations numbered I and II with variables x and y are given. You have to solve both the equations to find the relation between x and y.

11) I. 2x² – 13x + 15 = 0
   II. y² – 5y + 6 = 0
   a) If x > y  b) If x ≥ y  
   c) If x < y  d) If x ≤ y  
   e) If x = y or relationship between x and y cannot be determined.

12) I. 4x² + 13x + 3 = 0
    II. 2y² + 13y + 21 = 0
    a) If x > y  b) If x ≥ y  
    c) If x < y  d) If x ≤ y  
    e) If x = y or relationship between x and y cannot be determined.

13) I. 3x² + 11x + 8 = 0
    II. y² – 14y + 49 = 0
    a) If x > y  b) If x ≥ y  
    c) If x < y  d) If x ≤ y  
    e) If x = y or relationship between x and y cannot be determined.

14) I. x² + 3x – 40 = 0
    II. y² + 15y + 56 = 0
    a) If x > y  b) If x ≥ y  
    c) If x < y  d) If x ≤ y  
    e) If x = y or relationship between x and y cannot be determined.

15) I. 2x² + 27x + 88 = 0
    II. 5y² + 11y – 36 = 0
    a) If x > y  b) If x ≥ y  
    c) If x < y  d) If x ≤ y  
    e) If x = y or relationship between x and y cannot be determined.

16) Ajit, Raj and Madhu together can complete a piece of work in 10 days. Raj and Rajesh together can complete the work in 20 days. If
17) Simple interest on a certain sum at 6% per annum after four years will be Rs.7200. Find the difference between compound interest and simple interest on that sum at 5% per annum after 3 years.
   a) Rs.250.15  b) Rs.275.15  c) Rs.225.25  d) Rs.228.75  e) None of these

18) Reeta and Meena entered into a partnership with investment of Rs.40000 and Rs.56000. After one year, Kajal joined them with investment of Rs.60000. After one more year, Reeta invested Rs.10000 more. At the end of three years, they earned a total profit of Rs.209000. Find the share of Meena in the profit.
   a) Rs.92000  b) Rs.84000  c) Rs.72000  d) Rs.60000  e) None of these

19) Ratio of the ages of Meena and Sona is 8:9 respectively. After four years, ratio of their ages will be 9:10 respectively. Shyam is four years older than Meena and Teena is two years younger than Sona. Find the ratio of the present ages of Shyam and Teena.
   a) 19:18  b) 18:17  c) 17:16  d) 16:15  e) None of these

20) A container contains 78 litres mixture of milk and water which contains milk and water in the ratio 7:6 respectively. The milkman sold 52 litres of the mixture and added another 48 litres mixture of milk and water which contains milk and water in the ratio 7:5 to the remaining mixture. Find the amount of milk in the final mixture.
   a) 42 litres  b) 36 litres  c) 24 litres  d) 40 litres  e) None of these

Direction (21-25): Study the following information and give the answer of the following questions.

<table>
<thead>
<tr>
<th>Offices</th>
<th>No. of Employees HR + Account + Others</th>
<th>No. of Employees in HR</th>
<th>Ratio of Employees in HR and Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCS</td>
<td>270</td>
<td>18</td>
<td>2:3</td>
</tr>
<tr>
<td>Infosys</td>
<td>320</td>
<td>45</td>
<td>5:7</td>
</tr>
<tr>
<td>L&amp;T</td>
<td>280</td>
<td>16</td>
<td>8:5</td>
</tr>
<tr>
<td>HCL</td>
<td>250</td>
<td>32</td>
<td>8:7</td>
</tr>
<tr>
<td>Wipro</td>
<td>360</td>
<td>48</td>
<td>6:11</td>
</tr>
</tbody>
</table>

21) What is the number of employees in Account Department of offices TCS and HCL?
   a) 65  b) 55  c) 70  d) 42  e) None of these

22) What is the number of employees in Other Departments of offices HCL and Wipro?
   a) 400  b) 450  c) 414  d) 375  e) None of these

23) In Office L&T, 25%, 20% and 50% people in HR, Account and Others Department respectively are females. What is the number of males in these departments in office L&T?
   a) 125  b) 165  c) 140  d) 147  e) None of these
respectively. 30% of total number of boys is in sports team. Respective ratio of number of boys in sports team and number of boys in dance team is 9:8 respectively. 25% of total number of students is in dance team. Respective ratio of number of boys in dance team and number of girls in music team is 4:5 respectively. 20% of total number of girls is in arts team. Respective ratio of number of boys and number of girls in music team is 6:5 respectively.

26) Find the difference between number of girls in dance team and number of boys in sports team.
   a) 30  b) 55  c) 50
   d) 45  e) None of these

27) Find the respective ratio of number of girls in music team and number of girls in arts team.
   a) 7:3  b) 10:7  c) 11:9
   d) 9:5  e) None of these

28) Find the total number of students in music team.
   a) 220  b) 430  c) 310
   d) 520  e) None of these

29) Total number of students in Arts team is what percent of the total number of students in dance team?
   a) 60.4%  b) 53.2%  c) 78.3%
   d) 72.5%  e) None of these

30) Number of boys in dance team is what percent more than the number of boys in Arts team?
   a) 45%  b) 40%  c) 60%
   d) 55%  e) None of these

Directions (31–35): In each of the following questions, a question is followed by two statements I and II. Read both the statements to find the answer to given question and then answer accordingly that which statement/s can give the answer alone/together.

31) a and b are integers. Is b divisible by 45?
   Statement I: a/13 + b/90 is an integer.
   Statement II: b/135 is an integer.
   a) Only I  b) Only II  c) Either I or II  d) Both I and II together  e) Cannot be answered even after combining I and II

32) Find the quantity of the milk in 60 litre mixture.
   Statement I: Ratio of milk and water after adding 20 liters of milk to the mixture is 5:3.
   Statement II: The new mixture ratio after adding some quantity of the water is 7:8
   a) Only I  b) Only II  c) Either I or II  d) Both I and II together  e) Cannot be answered even after combining I and II

33) Find the value of (x + y)2.
   Statement I: x – y = 2
   Statement II: (x – 5)2 + (y – 3)2 = 0
   a) Only I  b) Only II  c) Either I or II  d) Both I and II together  e) Cannot be answered even after combining I and II

34) If 7ab4 is a four digit number, find the two digit number xy.
   Statement I: ab is divisible by 9.
   Statement II: ab is divisible 11.
   a) Only I  b) Only II  c) Either I or II  d) Both I and II together  e) Cannot be answered even after combining I and II

35) Find the number of days taken by Rakesh to complete the work.
   Statement I: Rakesh and Dinesh together can complete a piece of work in 30 days.
   Statement II: Dinesh and Mahesh together can complete the work in 20 days. Mahesh is 1.5 times as efficient as Dinesh.
   a) Only I  b) Only II  c) Either I or II  d) Both I and II together  e) Cannot be answered even after combining I and II

Solutions:

1) Answer: C
   6 x 0.5 + 1 = 4
   4 x 1 + 4 = 8
   8 x 1.5 + 9 = 21 (not 24)
   21 x 2 + 16 = 58
   58 x 2.5 + 25 = 85.5

2) Answer: B
   4 x 2 + 3 = 11
   11 x 3 + 4 = 37
   37 x 4 + 5 = 153
   153 x 5 + 6 = 771 (not 773)
   771 x 6 + 7 = 4633
3) **Answer: A**
\[
\begin{align*}
12 \times 2 &= 24 \\
24 \div 3 &= 8 \\
8 \times 4 &= 32 \\
32 \div 5 &= 6.4 \\
6.4 \times 6 &= 38.4
\end{align*}
\]

4) **Answer: D**
\[
\begin{align*}
2 + 13 \times 1 &= 15 \\
15 + 13 \times 2 &= 41 \\
41 + 13 \times 3 &= 80 \\
80 + 13 \times 4 &= 132 \\
132 + 13 \times 5 &= 197
\end{align*}
\]

5) **Answer: B**
\[
\begin{align*}
4 + 22 + 1 &= 9 \\
9 + 32 + 2 &= 20 \\
20 + 42 + 3 &= 45 \\
39 + 52 + 4 &= 95 \\
68 + 62 + 5 &= 135
\end{align*}
\]

6) **Answer: D**
\[
667.664 + 7666.464 - 563.24 + 48.22 =? \\
=> 7819.108 =?
\]

7) **Answer: B**
\[
\text{42% of 3200} - \text{24% of 1800} + \text{20% of 600} =? \\
=> \frac{42}{100} \times 3200 - \frac{24}{100} \times 1800 + \frac{20}{100} \times 600 =? \\
=> 1344 - 432 + 120 =? \\
=> 1032 =?
\]

8) **Answer: B**
\[
\text{1/24 x 5760 + 25% of 6000} - 450 + 650 =? \\
=> 240 + 1500 - 450 + 650 =? \\
=> 1940 =?
\]

9) **Answer: B**
\[
\sqrt{3363.99} x 5.8 + \sqrt{676.012} x 6.9 =? - 456.88 \\
\approx \sqrt{3364} x 6 + \sqrt{676} x 7 =? -457 \\
=> 58 x 6 + 26 x 7 + 457 =? \\
=> 348 + 182 + 457 =? \\
=> 987 =?
\]

10) **Answer: B**
\[
49.99 x 2.005 - 5.9 x 43.99 + 6.99 x 52.2 =? \\
\approx 50 x 2 - 6 x 44 + 7 x 52 =? \\
=> 100 - 264 + 364 =?
\]

11) **Answer: E**
\[
2x^2 - 13x + 15 = 0 \\
=> 2x^2 - 10x - 3x + 15 = 0 \\
=> 2x(x - 5) - 3(x - 5) = 0 \\
=> (2x - 3)(x - 5) = 0 \\
=> x = 3/2, 5 = 1.5, 5 \\
y^2 - 5y + 6 = 0 \\
=> y^2 - 3y - 2y + 6 = 0 \\
=> (y - 3)(y - 3) = 0 \\
=> y = 2, 3
\]

Hence, relationship between x and y cannot be determined.

12) **Answer: B**
\[
4x^2 + 13x + 3 = 0 \\
=> 4x^2 + 12x + x + 3 = 0 \\
=> 4x(x + 3) + 1(x + 3) = 0 \\
=> (4x + 1)(x + 3) = 0 \\
=> x = -1/4, -3 = -0.25, -3 \\
y^2 + 13y + 21 = 0 \\
=> 2y^2 + 6y + 7y + 21 = 0 \\
=> 2(y^2 + 3y) + 7(y + 3) = 0 \\
=> (2y + 7)(y + 3) = 0 \\
=> y = -7/2, -3 = -3.5, -3
\]

Hence, x \geq y

13) **Answer: C**
\[
3x^2 + 11x + 8 = 0 \\
=> 3x^2 + 3x + 8x + 8 = 0 \\
=> 3x(x + 1) + 8(x + 1) = 0 \\
=> (3x + 8)(x + 1) = 0 \\
=> x = -8/3, -1 = -2.66, -1 \\
y^2 - 14y + 49 = 0 \\
=> y^2 - 7y - 7y + 49 = 0 \\
=> (y - 7)(y - 7) = 0 \\
=> y = 7, 7
\]

Hence, x < y

14) **Answer: E**
\[
x^2 + 3x - 40 = 0 \\
=> x^2 + 8x - 5x - 40 = 0 \\
=> x(x + 8) - 5(x + 8) = 0 \\
=> (x - 5)(x + 8) = 0 \\
=> x = 5, -8 \\
y^2 + 15y + 56 = 0 \\
=> y^2 + 7y + 8y + 56 = 0 \\
=> (y + 7)(y + 8) = 0 \\
=> (y + 8)(y + 7) = 0
\]
=> y = -8, -7
Hence, relationship between x and y cannot be determined.

15) Answer: C
2x² + 27x + 88 = 0
=> 2x² + 16x + 11x + 88 = 0
=> 2x(x+8) + 11(x+8) = 0
=> (2x + 11)(x + 8) = 0
=> x = -11/2, -8 = -5.5, -8
5y² + 11y – 36 = 0
=> 5y² + 20y – 9y – 36 = 0
=> 5(y+4) – 9(y+4) = 0
=> (5y-9)(y+4) = 0
=> y = 9/5, -4 = 1.8, -4
Hence, x < y

16) Answer: B
1/Ajit + 1/Raj + 1/Madhu = 1/10 ----------- (i)
1/Raj + 1/Rajesh = 1/20 -------------- (ii)
1/Raj + 1/30 = 1/20
=> 1/Raj = 1/20 – 1/30
=> 1/Raj = (3 – 2)/60
=> 1/Raj = 1/60
From (i)
1/Ajit + 1/60 + 1/Madhu = 1/10
=> 1/Ajit + 1/Madhu = 1/10 – 1/60
=> 1/Ajit + 1/Madhu = (6 – 1)/60
=> 1/Ajit + 1/Madhu = 5/60
=> 1/Ajit + 1/Madhu = 1/12
Let, required number of days = n
n x (1/12 + 1/30) = 1
=> n x (5 + 2)/60 = 1
=> n = 60/7 days

17) Answer: D
We know that
SI = (P x r x t)/100
=> 7200 = (P x 6 x 4)/100
=> P = 720000/24
=> P = Rs.30000
We know that, for three years
CI – SI = P x (r/100)² x (300 + r)/100
= 30000 x (5/100)² x (300 + 5)/100
= 30000 x (5/100) x 305/100
= Rs.228.75

18) Answer: B
Ratio of shares in the profit:
Reeta: Meena: Kajal = (40000 x 2 + 50000): (56000 x 3): (60000 x 2)
= 130000: 168000: 120000
= 65: 84: 60
Share of Meena in the profit = 84/(65 + 84 + 60) x 209000
= 84/209 x 209000
= Rs.84000

19) Answer: B
Let, present ages of Meena and Sona be 8k years and 9k years respectively.
According to the question
(8k + 4)/(9k + 4) = 9/10
=> 10 x (8k + 4) = 9 x (9k + 4)
=> 80k + 40 = 81k + 36
=> 81k – 80k = 40 – 36
=> k = 4
Present age of Meena = 8k = 8 x 4 = 32 years
Present age of Sona = 9k = 9 x 4 = 36 years
Present age of Shyam = 32 + 4 = 36 years
Present age of Teena = 36 – 2 = 34 years
Required ratio = 36: 34 = 18:17

20) Answer: A
Amount of milk in the initial mixture = 7/13 x 78 = 42 litres
Amount of water in the initial mixture = 6/13 x 78 = 36 litres
Amount of milk in the remaining mixture = 42 – 7/13 x 52 = 42 – 28 = 14 litres
Amount of milk in the final mixture = 14 + 7/12 x 48 = 14 + 28 = 42 litres

21) Answer: B
In TCS = 18 * 3/2 = 27
In HCL = 32 * 7/8 = 28
Required total = 27+28 = 55
22) Answer: C
In HCL = 32 * 7/8 = 28
In HCL, in Account = 28, so in Others = 250 – (32+28) = 190
In Wipro, in Account = 48 * 11/6 = 88, so in Others = 360 - (48+88) = 224
Required total = 190 + 224 = 414

23) Answer: D
In L&T, in HR = 16, so males = 75/100 * 16 = 12
In L&T, in Account = 16 * 5/8 = 10, so males = 80/100 * 10 = 8
In L&T, in others = 280 – (16+10) = 254, so males = 50/100 * 254 = 127
Required number = 12+8+127 = 147

24) Answer: E
In TCS = 18 * 3/2 = 27
In TCS, in others = 270 – (18+27) = 225
In HCL = 32 * 7/8 = 28
In HCL, in others = 250 – (32+28) = 190
Required ratio = 225: 190 = 45: 38

25) Answer: B
In TCS = 18 * 3/2 = 27
In HCL = 32 * 7/8 = 28
In L&T = 16 * 5/8 = 10
In Wipro = 48 * 11/6 = 88
In Infosys = 45/5 * 7 = 63
Required number = 27+63+28+10+88 = 216

Directions (26-30):

26) Answer: B
Required difference = 135 – 80 = 55

27) Answer: B
Required ratio = 100: 70 = 10:7

28) Answer: A
Required total = 120+100= 220

29) Answer: D
Required percentage = 145/200 x 100 = 72.5%

30) Answer: C
Required percentage = (120 – 75)/75 x 100
= 45/75 x 100
= 60%

31) Answer: C
From I:
a/13 + b/90 is an integer.
=> a/13 is an integer and b/90 is an integer.
=> b is divisible by 90.
45 x 2 = 90
=> b is divisible by 45.
From II:
b/135 is an integer.
=> b is divisible by 135
45 x 3 = 135
=> b is divisible by 45.
Hence, either I or II is sufficient.

32) Answer: A
From I:
we can find the milk and water quantity
Total quantity after adding 20 liters of milk=60+20=80liters
Then quantity of milk=50 liters and water quantity=30 liters
From II:
We can’t find the quantity

33) Answer: B
From I:
x – y = 2
From II:
(x – 5)² + (y – 3)² = 0
=> (x – 5) = 0 and (y – 3) = 0 [If sum of two positive numbers is zero then the numbers are also zero]
=> x = 5 and y = 3
Now,
(x + y)² = (5 + 3)² = 82 = 64
Hence, only II is sufficient.
34) Answer: D
From I:
Possibilities:
18, 27, 36, 45, 54, 63, 72, 81, 90, 99

From II:
11, 22, 33, 44, 55, 66, 77, 88, 99
From I and II:
99
Hence, both I and II together are sufficient.

35) Answer: D
From I:
1/Rakesh + 1/Dinesh = 1/30

From II:
1/Dinesh + 1/Mahesh = 1/20
=> 1/Dinesh + 1.5/Dinesh = 1/20
=> 2.5/Dinesh = 1/20
=> 1/Dinesh = 1/20 x 1/(2.5)
=> 1/Dinesh = 1/50
From I and II:
1/Rakesh + 1/50 = 1/30
=> 1/Rakesh = 1/30 – 1/50
=> 1/Rakesh = (5 – 3)/150
=> 1/Rakesh = 2/150
=> 1/Rakesh = 1/75
Hence, both I and II together are sufficient.