Quantitative Aptitude

Directions (1–10): What should be the approximate value come in place of question mark (?)?

1) \( \sqrt[3]{15628} \times (201 \div 8) = (?)^2 
   \)
   a) 28
   b) 25
   c) 31
   d) 22
   e) 24

2) 23% of 5793 + 57% of 8581 = ?
   a) 6460
   b) 6240
   c) 7250
   d) 7420
   e) 6630

3) \( 345.01 \times 224.99 \div (11 \times 5) = ? \)
   a) 1380
   b) 1260
   c) 1540
   d) 1720
   e) 1670

4) \( (4429 \div 44.3) \times 18.75 - 289.59 = ? \)
   a) 1275
   b) 1585
   c) 1725
   d) 1945
   e) 1365

5) \( (1/8) \) of 2768 + 2835.42 = ? - 297
   a) 3520
   b) 3478
   c) 3252
   d) 3046
   e) 3164

6) \( (3.82)^3 \times (16.13)^2 \div \sqrt[4]{4095.89} = 4^x \)
   a) 6
   b) 7
   c) 4
   d) 3
   e) 5

7) 18.23 \times 21.04 \div ? + 352 = 429.07
   a) 5
   b) 18
   c) 23
   d) 12
   e) None of these

8) 154 \% of 546.999 + 12.85 \% of 1398.73 = ?
   a) 1100
   b) 950
   c) 800
   d) 1350
   e) 1500

9) \( ?^2 + 44.78\% \) of 1695.99 + 336 = 5320.729
   a) 55
   b) 57
   c) 62
   d) 65
   e) 59

10) \( (8/15) \) of 5025.98 + (11/200) of 58398.5 = ?
    a) 6775
    b) 7850
    c) 5890
    d) 4785
    e) 7235
Directions (11-15): What should come in place of question mark (?) in the following number series?

11) 18, 10, 11, 17.5, 36, ?
   a) 72
   b) 91
   c) 76
   d) 78
   e) 80

12) 86, 94, 78, 110, 46, ?
   a) 102
   b) 98
   c) 146
   d) 174
   e) 190

13) 9, 10, 22, 69, ?, 1405
   a) 280
   b) 144
   c) 356
   d) 438
   e) 272

14) 4, 7, 19, 49, 106, ?
   a) 205
   b) 215
   c) 175
   d) 199
   e) 185

15) 17, 26, 51, 100, 181, ?
   a) 235
   b) 278
   c) 315
   d) 302
   e) 333

16) Ragu and Vasu undertook to do a piece of work for Rs.1260. Ragu alone could do it in 9 days, while Vasu alone can do it in 6 days, with the assistance of a boy they finish it in 3 days. Find the share of the boy?
   a) Rs. 340
   b) Rs. 210
   c) Rs. 420
   d) Rs. 560
   e) None of these

17) Meena purchased a TV set for Rs. 36250. He spent Rs. 500 on Transport and Rs. 1050 on installation. At what price should it be sold so that the profit earned would be 15%?
   a) Rs. 41890
   b) Rs. 39640
   c) Rs. 43470
   d) Rs. 49860
   e) None of these

18) The volume of a cylindrical tank is 1584 m³. Its radius and height are in the ratio of 3 : 7. What is the height of the tank?
   a) 12 m
   b) 15 m
   c) 21 m
   d) 14 m
   e) None of these

19) The difference between the Simple interest and Compound Interest on a certain sum for a period of 3 years is 263.5 at 10 % per annum. Find the sum?
   a) Rs.8500
   b) Rs.10500
   c) Rs.7800
   d) Rs.9400
   e) None of these

20) A, B and C enter into a partnership. They invest Rs.16000, Rs.32000 and Rs.48000 respectively. At the end of 4 months B withdraws Rs.16000 while at the end of 6 months C
withdraws Rs.32000. In what ratio will the profit be shared at the end of 12 months?

a) 5: 6: 9  
b) 3: 5: 7  
c) 2: 4: 9  
d) 4: 5: 7  
e) None of these

Directions (21-25): What approximate value should come in place of question mark (?) in the following questions (?) (you are not expected to calculate the exact value).

21) \( \frac{(23.37 \times 3.87 + 18 \times 6.05)}{((6.03)^2 + \sqrt{256.10} + 12.01)} = ? \)

a) 9  
b) 3  
c) 12  
d) 15  
e) 21

22) \( 839 \times \frac{12}{15.13} \times \frac{441.26}{21.01} \div \left(\frac{16.98}{320.01}\right) = ? \)

a) 268800  
b) 132200  
c) 185600  
d) 317700  
e) 225500

23) \( 4567.8 - (221 \times 9.7) = 5059 - ? \)

a) 3400  
b) 2400  
c) 2700  
d) 3800  
e) 3600

24) \( 4 \frac{1}{5} \text{ of } 275.5 + 260.50 + 6 \frac{1}{5} \text{ of } 125.75 = ? \)

a) 3500  
b) 2200  
c) 3800  
d) 1700  
e) 2600

25) \( 35\% \text{ of } 2793 + 49.8\% \text{ of } 1234 = ? \)

a) 2800  
b) 3200  
c) 3400  
d) 1600  
e) 2000

26) The average monthly income of a family of 6 members was Rs.21600. One of the daughters in the family got married and left home, so the average monthly income of family comes down to Rs.18200. What is the monthly income of married daughter?

a) Rs.23400  
b) Rs.38600  
c) Rs.32800  
d) Rs.28900  
e) None of these

27) 5 years ago, the ratio of ages of Abi and Pari was 5:3. Neela is 5 years younger than Abi and 5 years older than Pari. What is Neela’s present age?

a) 20 years  
b) 22 years  
c) 25 years  
d) 30 years  
e) 28 years

28) The difference between the S.I and C.I on a certain sum at 5% per annum for 2 years is Rs.105. Find the sum?

a) 36000  
b) 28000  
c) 46000  
d) 42000  
e) None of these

29) Two trains 155 m and 175 m long respectively are running in the same direction at the speed of 81 km/hr and 45 km/hr respectively.
In how much time will the first train take to cross the second one?

a) 16 sec  
b) 27 sec  
c) 42 sec  
d) 33 sec  
e) None of these

30) A boat can cover 9.6 km upstream in 24 minutes. If the speed of the current is ¼ of the boat in still water, then how much distance can the boat cover downstream in 36 minutes?

a) 24 km  
b) 36 km  
c) 28 km  
d) 42 km  
e) None of these

Directions (31-35): Study the following information carefully and answer the given questions:

Following table shows the percentage distribution of total number of students who completed their graduation from different universities and the ratio of male to female among them.

Total number of students = 56000

<table>
<thead>
<tr>
<th>University</th>
<th>Total number of students</th>
<th>Male : Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>23 %</td>
<td>7 : 3</td>
</tr>
<tr>
<td>Q</td>
<td>18 %</td>
<td>5 : 4</td>
</tr>
<tr>
<td>R</td>
<td>12 %</td>
<td>2 : 1</td>
</tr>
<tr>
<td>S</td>
<td>27 %</td>
<td>3 : 5</td>
</tr>
<tr>
<td>T</td>
<td>20 %</td>
<td>2 : 3</td>
</tr>
</tbody>
</table>

31) Find the total number of male graduates from the given universities together?

a) 29246  
b) 25782  
c) 33567  
d) 37895  
e) None of these

32) Total number of female graduates from university Q and R is approximately what percentage of total number of male graduates from university P and T?

a) 32 %  
b) 44 %  
c) 68 %  
d) 50 %  
e) 35 %

33) Find the ratio between the total number of male graduates from university Q, R and T together to that of female graduates from university P, R and S together?

a) 8576 : 7115  
b) 9254 : 8471  
c) 7280 : 7777  
d) 5890 : 4783  
e) None of these

34) Total number of graduates from university P and Q together is approximately what percentage more/less than the total number of graduates from university R and S together?

a) 8 % less  
b) 5 % more  
c) 12 % more  
d) 15 % less  
e) 18 % more

35) In which university, the highest number of female graduates completed their graduation?

a) University P  
b) University Q  
c) University R  
d) University S  
e) University T

Direction (36-40): In the following question, two equations I and II are given. Solve both the
equations carefully & answer the questions given below:

a) If x > y
b) If x < y
c) If x ≥ y
d) If x ≤ y
e) If x = y or relation cannot be established

36) I. $8x^2 - 49x + 45 = 0$
   II. $8y^2 - y - 9 = 0$

37) I. $42x - 17y = -67$
   II. $7x + 12y = -26$

38) I. $x^2 - 8x + 15 = 0$
   II. $2y^2 - 21y + 55 = 0$

39) I. $x^2 + 12x + 32 = 0$
   II. $2y^2 + 15y + 27 = 0$

40) I. $6x^2 – 17x + 12 = 0$
   II. $7y^2 – 13y + 6 = 0$

**Reasoning Ability**

Directions (41-45): Study the following information carefully and answer the questions given below.

Eight persons A, B, C, D, E, F, G and H are sitting around a circular table but not necessarily in the same order. Four of them are facing towards the centre and remaining are facing opposite to the centre.

B sits second to the right of D. F sits third to the left of C. E sits opposite to G who is an immediate neighbour of C and B. A doesn’t sits opposite to F and H. F faces outside the centre and sits third to the right of A. A and F are facing opposite direction. Immediate neighbours of A are facing same direction which is opposite to A. B and C are facing same direction.

41) Who sits immediate right of B?
   a) G  
   b) C  
   c) A  
   d) E  
   e) None of these

42) Which of the following person is an immediate neighbour of A?
   a) D  
   b) E  
   c) C  
   d) G  
   e) None of these

43) Who sits third to the right of the person who sits opposite to F?
   a) A  
   b) B  
   c) D  
   d) H  
   e) None of these

44) Which of the following makes first person sits third to the right of the second person?
   a) DF  
   b) AG  
   c) FC  
   d) EC  
   e) None of these

45) Four of the following five in such a way to form a group, which one of the following does not belong to the group?
   a) C  
   b) A  
   c) B  
   d) D  
   e) G  

Directions (46-50): Study the following information carefully and answer the questions given below.
Seven persons P, Q, R, S, T, U and V are sitting at equal distance in a straight row facing south but not necessarily in the same order. P sits in the middle of the row. Two people sit between P and Q. U sits third to the right of S who is not an immediate neighbour of P. Number of person sits to the left of V is one more than that of number of persons sits to the right of R. V is not a neighbour of U. T sits right of P.

46) Who sits extreme right end of the row?
   a) T  
   b) Q  
   c) U  
   d) V  
   e) None of these

47) How many person sits between T and V?
   a) 1  
   b) 2  
   c) 3  
   d) More than three  
   e) None

48) Who sits third to the left of U?
   a) V  
   b) Q  
   c) S  
   d) T  
   e) None

49) If X sits exactly between T and R and Y sits exactly between V and S. Then how many person sits between X and Q?
   a) 2  
   b) 3  
   c) 5  
   d) 6  
   e) Cannot be determined

50) If all the persons are arranged from the right end of the row to left end of the row according to the English alphabetical series, then how many persons remains unchanged according to their previous position?
   a) 1  
   b) 2  
   c) 3  
   d) 4  
   e) None

Directions (51-55): In each of the following questions some statements are followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the given statements.

51) Statements:
   All shirt is Trousers
   All Trouser is Jean
   No Trouser is Cotton

   Conclusions:
   I) No shirt is Cotton
   II) No Jean is Cotton
   a) Only I follow  
   b) Only II follow  
   c) Either I or II follows  
   d) Neither I nor II follows  
   e) Both I and II follows

52) Statements:
   Some Bulb is Car
   All Lorry is Bike
   All Bike is Car

   Conclusions:
   I) Some Bulb is Lorry
   II) No Bulb is Lorry
   a) Only I follow 
   b) Only II follow 
   c) Either I or II follows 
   d) Neither I nor II follows 
   e) Both I and II follows
e) Only i follow

53) Statements:
All Copper is Metal
Some Metal is Plate
No Metal is Diamond

Conclusions:
I) No Plate is Copper
II) No Copper is Diamond
a) Only I follow
b) Only II follow
c) Either I or II follows
d) Neither I nor II follows
e) Both I and II follow

54) Statements:
Some Phone is Vivo
Some Vivo is Oppo
No Oppo is Sony

Conclusions:
I) Some Phone is Oppo
II) No Vivo is Sony
a) Only I follow
b) Both I and II follow
c) Either I or II follows
d) Neither I nor II follows
e) Only II follow

55) Statement:
All Chair is Watch
No Chair is Table
All Table is Wood

Conclusions:
I) All Chair is Wood is Possibility
II) Some Wood is Chair
a) Only I follow
b) Only II follow
c) Either I or II follows
d) Neither I nor II follows
e) Both I and II follow

Directions (56-60): Study the following information carefully and answer the questions given below.

Eight watches A, B, C, D, E, F, G and H were bought on eight different months March, April, May, July, August, October, November and December of the same year but not necessarily in the same order.
The watch E was bought on March. The watch H was bought on the month which has 30 days. Two watches were bought between H and A. The watch G was bought just before C. Four watches were bought between D and F which was bought before G. As many watches bought between B and G is as same as between F and C.

56) Watch C was bought on which of the following months?
a) July
b) August
c) October
d) April
e) None of these

57) How many watches were bought between H and G?
a) 1
b) 2
c) 3
d) 4
e) None of these

58) Which of the following watch was bought just before the watch which was bought on July?
 a) B
 b) C
 c) D
 d) E
 e) F

59) Which of the following watch was bought on August?

Directions (61-65): Study the following information carefully and answer the questions given below.

Five different plants A, B, C, D and E were planted on five different months February, March, April, May and June of the same year but not necessarily in the same order.
The plant D was planted on the month which has 31 days. Three plants were planted between B and D. The plant C was planted just before E. Three plants were planted between A and C which is same as between B and E.

61) Plant A was planted on which of the following months?
 a) February
 b) March
 c) April
 d) May
 e) None of these

62) How many plants were planted between B and D?
 a) 1
 b) 2
 c) 3
 d) 4
 e) None of these

63) Which of the following plant was planted just before the plant which was planted on June?
 a) B
 b) C
 c) D
 d) E
 e) F

64) Which of the following plant was planted on March?

65) Which of the following plant was planted on May?
60) Four of the five among the following are similar in such a way to form a group, Which one of the following doesn’t belong to the group?

a) E  
b) F  
c) A  
d) H  
e) G

Directions (61-65): Study the following information carefully and answer the given questions.
In the following question assuming the given statements to be true, find which of the conclusion among given five conclusions is/are definitely true and then give your answers accordingly.

a) Only conclusion I is true  
b) Only conclusion II is true  
c) Both conclusion I and II are true  
d) Either conclusion I or II is true  
e) Neither conclusion I or II is true

61) Statement: I ≥M; M ≥J; L≤ J; L=O; O< N

Conclusion:
I) L=I  
II) L< I

62) Statement: B< H≤ K; H ≥I >F; F=M >Z,

Conclusion:
I) I≤ K  
II) B< Z

63) Statement: S≤ T ≥Z=I; I=N >M

Conclusion:
I) M >T

II) N≤ T

64) Statement: K≤ A ≥C>D=F≤ I >Z

Conclusion:
I) F >A  
II) C ≥Z

65) Statements: E≤ K <L; K=S >O; S ≤T >U

Conclusions:
I) E≤ T  
II) L >O

Directions (66-70): Study the following information carefully and answer the questions given below.

532   427    248    386    148

66) if The digits in each number are arranged in descending order, then which of the following number will be the third highest number?

a) 532  
b) 427  
c) 386  
d) 148  
e) None of these

67) If all the numbers are arranged by ascending order from left end to right end then which of the following number is second from the right end?

a) 148  
b) 427  
c) 532  
d) 248  
e) None of these

68) If third digit of third lowest number is divided by second digit of second highest, then what will be the resultant answer?

a) 1  
b) 4  
c) 2
69) What will be the resultant of multiplication of last two digits of highest number with last two digits of lowest number?
a) 1536  
b) 1436  
c) 2436  
d) 1546  
e) None of these

70) If one is added to all even digits and one is subtracted from all odd digits within the number , then which of the following number will be the third lowest number?
a) 427  
b) 248  
c) 386  
d) 148  
e) None of these

Direction (71-75): Study the following information carefully and answer the questions given below.
Seven persons I, J, K, L, M, N, and O are starting their work in seven different timings 8 am, 9 am, 10 am, 11 am, 12 pm, 1 pm and 2 pm in the same day but not necessarily in the same order.
O started his work in the afternoon. Two people were started their work between O and N. Only one person started his work between I and J who started his work after O. The sum of starting time of M and L is four more than that of K’s starting time. M started his work before L.

71) K started his work in which of the following time?
a) 9 am  
b) 10 am  
c) 11 am  
d) 12 am  
e) None of these

72) How many persons started their work between M and J?
a) 1  
b) 2  
c) 3  
d) 4  
e) None of these

73) Who started his work just before M?
a) K  
b) J  
c) L  
d) N  
e) None of these

74) Which of the following is correct with respect to the person and their working time?
a) N -10 am  
b) J – 11 pm  
c) O – 2 am  
d) L – 2 pm  
e) None of these

75) What is the difference of starting time of O and L?
a) 2  
b) 4  
c) 6  
d) 8  
e) None of these

Direction (76-77): Study the following information carefully and answer the questions given below.
Point F is 8m to the east of point D and 12 m to the south of point G. Point G is 4m to the west of point K. Point O is 6m to the south of point K. Point O is 12m to the east of point R. point T is 10m to the north of point R.
76) What is the shortest distance between the point F and K?
   a) $4\sqrt{10}$m
   b) $5\sqrt{6}$m
   c) $5\sqrt{10}$m
   d) 160m
   e) None of these

77) Point R is in which direction with respect to point K?
   a) North west
   b) South
   c) South west
   d) North east
   e) None of these

78) Find the odd one out
   a) CEG
   b) FHJ
   c) JLN
   d) RSU
   e) DFH

79) If it is possible to make meaningful word with the second, fourth, fifth, sixth, ninth and tenth letters of the word “IMPEACHMENT” Which would be the second letter of the word from the left end? If more than one such word can be formed give X as the answer. If no such word can be formed, give Y as your answer.
   a) E
   b) X
   c) Y
   d) A
   e) N

80) How many such pairs of letters are there in the word “ENCLAVE” which has as many letters between them in the word as in alphabetical series (Both forward and backward)?
   a) 1
   b) 2
   c) 4
   d) None
   e) None of these

**Answers:**

**Quantitative Aptitude**

1) **Answer:** b

(?)$^2 = \sqrt[3]{15628 \times (201 ÷ 8)}$

($\because$ $\sqrt[3]{15628} \approx \sqrt[3]{15625} = 25$

$\
\therefore (?)^2 = 25 \times (200/8) = 25 \times 25$

$\therefore (?) = \sqrt{(25 \times 25)} = 25$

2) **Answer:** b

? = 23% of 5793 + 57% of 8581

? = \[23 \times 5793 \div 100\] + \[57 \times 8581 \div 100\]

? = 1334 + 4902 = 6236

? = 6240

3) **Answer:** a

? = $345.01 \times 224.99 ÷ (11 \times 5)$

\[? = 345 \times (225/55) \]

\[? = 345 \times 4 = 1380\]

4) **Answer:** b

\[? \approx (4430 ÷ 44.3) \times 18.75 – 290\]

\[= 100 \times 18.75 – 290\]

\[= 1875 – 290 = 1585\]

5) **Answer:** b

\[? = 297 = (1/8) \times 2768 + 2835.42\]

\[\approx 346 + 2835 = 3181\]
1) \( \therefore ? = 3181 + 297 = 3478 \)

6) Answer: \( c \)
\[ 4^3 \times 16^2 \div \sqrt{4096} = 4^x \]
\[ (4^3 \times 16 \times 16) / 64 = 4^x \]
\[ 4^4 = 4^x \]
\[ X = 4 \]

7) Answer: \( a \)
\[ (18 \times 21/x) + 352 = 429 \]
\[ 18 \times 21/x = 77 \]
\[ X = 18 \times 21/77 \]
\[ X = 54/11 = 5 \]

8) Answer: \( a \)
\[ 154\% \text{ of } 550 + 13\% \text{ of } 1400 = x \]
\[ (154 \times 550)/100 + (13 \times 1400)/100 = x \]
\[ 847 + 182 = x \]
\[ X = 1092 = 1100 \]

9) Answer: \( d \)
\[ X^2 + (45 \times 1700) / 100 + 336 = 5321 \]
\[ X^2 = 5321 - 336 - 765 \]
\[ X^2 = 4220 \]
\[ X = 65 \]

10) Answer: \( c \)
\[ (8/15) \text{ of } 5025 + (11/200) \text{ of } 58400 = x \]
\[ 2680 + 3212 = x \]
\[ X = 5892 = 5890 \]

11) Answer: \( b \)
\[ \ast 0.5 +1, \ast 1+1, \ast 1.5+1, \ast 2+1, \ast 2.5+1 \]

12) Answer: \( d \)
\[ +8, -16, +32, -64, +128 \]

13) Answer: \( a \)
\[ \ast 1+1, \ast 2+2, \ast 3+3, \ast 4+4, \ast 5+5 \]

14) Answer: \( d \)

The difference of difference is, \( 9, 18, 27, 36 \ldots \)

15) Answer: \( d \)
\[ +3^2, +5^2, +7^2, +9^2, +11^2 \]

16) Answer: \( b \)
A boy alone can do it in,
\[ = \left( 1/3 \right) - \left( 1/9 + 1/6 \right) \]
\[ = \left( 1/3 \right) - 5/18 = 1/18 \]
The ratio of Ragu, Vasu and boy alone can do the work = \( (1/9) : (1/6) : (1/18) = 2 : 3 : 1 \)
\[ 6 \times 1260 \Rightarrow 1 \text{’s} = 210 \]
The share of boy = Rs. 210

17) Answer: \( c \)
Meena purchased a TV set for Rs. 36250. He spent Rs. 500 on Transport and Rs. 1050 on installation.
Cost price = 36250+500+1050 = 37800
Profit % = 15%
Selling price = 37800*(115/100) = Rs. 43470

18) Answer: \( d \)
The volume of a cylindrical tank is 1584 lit
The radius and height are in the ratio of 3:7
Volume of a cylinder = \( \pi r^2 h \)
\[ \frac{22}{7} \times (3x)^2 \times 7x = 1584 \]
\[ X^3 = 8 \]
\[ X = 2 \]
Radius = 3x = 6 m
Height = 7x = 14 m

19) Answer: \( a \)
For 3 years,
The difference between the Simple interest and Compound interest is,
\[ \text{Diff} = \text{sum} \times r \times (r+300) / (100)^3 \]
\[ 263.5 = (\text{sum} \times 100 \times 310) / (100 \times 100 \times 100) \]
\[ \text{Sum} = 263500/31 = \text{Rs.8500} \]
20) Answer: e
The ratio of profit of A : B : C = 16000*(12) : 32000*(4) + 16000*(8) : 48000*(6) + 16000*(6)
= > 192000 : 256000 : 384000
= > 3 : 4 : 6

21) Answer: b
[(23 × 4) + (18 × 6)] / (36 + 16 + 12) = x
X= 200/64 = 3

22) Answer: a
840 × 12/15 × 441/21 = x
X= 268800

23) Answer: c
X= 5059 - 4568 + (221 × 10)
X= 5059 - 4568 + 2210
X= 2701

24) Answer: b
(21/5) * 275 + 261 + (31/5) * 125 = x
X= 1155 +261+ 775
X= 2191 = 2200

25) Answer: d
(35/100)*2800 + (50/100) * 1234 = x
X= 980 + 617 = 1597
X= 1600

26) Answer: b
The average monthly income of a family of 6 members was Rs.21600,
Total monthly income of a family of 6 members= 21600*6= Rs.129600

One of the daughters got married and left the home, now the average = Rs.18200
Total monthly income of a family of 5 members = 18200*5 = Rs.91000
Monthly income of married daughter= 129600 – 91000 = Rs.38600

27) Answer: c

5 years ago, the ratio of ages of Abi and Pari = 5:3
(let us assume the age of abi and pari = 5x, 3x)
Neela = Abi - 5
Neela = Pari + 5
Abi - 5 = Pari + 5
2x + 5 = 3x + 5
2x= 10=> x= 5
Abi= 25+5 = 30, Pari= 15+5 =20
Neela’s Present age= Abi – 5= 25 years

28) Answer: d
The difference between the S.I and C.I for 2 years,
Diff= sum*(r/100)^2
105 = sum*(5/100)^2
Sum= 42000

29) Answer: d
Both the trains are running at the same direction,
So, relative speed= S1 - S2
Distance= Train length1+ Train length2
The first train takes to cross the second one in,
T = D/S
T= (155+175)/((81 – 45)*(5/18))
T= 330/(36*(5/18))
T= 330/10 = 33 sec

30) Answer: a
The speed of upstream= D/T = 9.6/(24/60) = 24 km/hr
The speed of the current = ¼ of the boat in still water
Speed of boat : Speed of Current = 4:1 = (x: 4x)
Speed of Upstream = Speed of boat - Speed of Current = 3x
24 = 3x
X= 8
Speed of boat = 32 km/hr, Speed of Current = 8 km/hr
Speed of downstream= Speed of boat + Speed of Current = 5x
Speed of downstream = 40 km/hr
Time = 36 min= (36/60) hr
Distance = S*T = 40*(36/60) = 24 km

Directions (31-35):

<table>
<thead>
<tr>
<th>University</th>
<th>Total number of students</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>12880</td>
<td>9016</td>
<td>3864</td>
</tr>
<tr>
<td>Q</td>
<td>10080</td>
<td>5600</td>
<td>4480</td>
</tr>
<tr>
<td>R</td>
<td>6720</td>
<td>4480</td>
<td>2240</td>
</tr>
<tr>
<td>S</td>
<td>15120</td>
<td>5670</td>
<td>9450</td>
</tr>
<tr>
<td>T</td>
<td>11200</td>
<td>4480</td>
<td>6720</td>
</tr>
</tbody>
</table>

31) Answer: a
The total number of male graduates from the given universities together
= > 9016 + 5600 + 4480 + 5670 + 4480 = > 29246

32) Answer: d
Total number of female graduates from university Q and R
= > 4480 + 2240 = 6720
Total number of male graduates from university P and T
= > 9016 + 4480 = 13496
Required % = (6720/13496)*100 = 49.79 % = 50 %

33) Answer: c
The total number of male graduates from university Q, R and T together
= > 5600 + 4480 + 4480 = 14560
The total number of female graduates from university P, R and S together
= > 3864 + 2240 + 9450 = 15554
Required ratio = 14560: 15554 = 7280: 7777

34) Answer: b
Required % = {[(23+ 18) - (12 + 27)](12 + 27)}*100
= > {41 – 39}/39}*100 = 5.128 % = 5 % more

35) Answer: d
University S has highest number of female graduates.

36) Answer: c
I. 8x^2 - 49x + 45 = 0
8x^2-40x-9x+45=0
8x(x-5) – 9 (x-5) =0
(8x-9) (x-5) =0
X =9/8, 5
II. 8y^2 - y - 9 = 0
8y^2+8y-9y-9=0
8y(y+1) -9 (y+1) =0
(8y-9) (y+1) = 0
Y= 9/8,-1
X ≥ Y

37) Answer: b
42x - 17y = -67 ------- 1
7x + 12y = -26 ------- 2
X = -2, Y= -1
X < Y

38) Answer: d
I. x^2 - 8x + 15 = 0
(x - 3) (x - 5) = 0
X = 5, 3
II. 2y^2 - 21y + 55 = 0
2y^2-10y-11y+55 = 0
2y (y-5) -11 (y-5) =0
(2y-11) (y-5) =0
Y =5, 11/2
x ≤ y

39) Answer: e
I. x^2 + 12x + 32 = 0
(x+4) (x+8) =0
X =-4,-8
II. 2y^2 + 15y + 27 = 0
2y^2+6y+9y+27 =0
2y (y+3) +9 (y+3) =0
(2y+9) (y+3) =0
Y = -9/2 , -6/2 =-4.5,-3
x = y or relation cannot be established

40) Answer: a
I. \(6x^2 - 17x + 12 = 0\)
   \(6x^2-9x-8x+12=0\)
   \(3x(2x-3) - 4(2x-3) = 0\)
   \((3x-4)(2x-3) = 0\)
   \(X = \frac{3}{2}, \frac{4}{3}\)
II. \(7y^2 - 13y + 6 = 0\)
   \(7y^2-7y -6y+6 =0\)
   \(7y (y-1) -6 (y-1) =0\)
   \((7y-6) (y-1) =0\)
   \(Y = \frac{6}{7}, 1\)
\(X > Y\)

Reasoning Ability
Directions: (Q. 41-45):
41) Answer: a
42) Answer: b
43) Answer: b
44) Answer: d
45) Answer: e
- B sits second to the right of D.
- E sits opposite to G who is an immediate neighbour of C and B.
- F sits third to the left of C.
- A doesn’t sits opposite to F and H. So A should be sits opposite to B in both the cases.

Directions (Q. 46-50):
46) Answer: a
47) Answer: c
48) Answer: c
49) Answer: d
50) Answer: e

- P sits middle of the row.
- Two people sit between P and Q.

Case 1

- U sits third to the right of S who is not an immediate neighbour of P.

Case 1

- Number of person sits left of V is one more than that of number of persons sits right of R.
- V is not a neighbour of U.

Case 1

- T sits right of P. from this statement case 2 is invalid. And case 1 is the final arrangement.

Directions (51-55):

51) Answer: (A)

52) Answer: (C)

53) Answer: (B)

54) Answer: (D)
55) Answer: (A)

56) Answer: c
57) Answer: a
58) Answer: e
59) Answer: d
60) Answer: d

- The watch E was bought on March.
- The watch H was bought on the month which has 30 days.
- Two watches were bought between H and A.
- Four watches were bought between D and F which was bought before G.

<table>
<thead>
<tr>
<th>Months</th>
<th>Watches</th>
<th>Case 1</th>
<th>Case 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>March(31)</td>
<td>E</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>April(30)</td>
<td>H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May(31)</td>
<td>F</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>July(31)</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>August(31)</td>
<td>G</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>October(31)</td>
<td>C</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>November(30)</td>
<td>H</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>December(31)</td>
<td>D</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

- Now we can also fix B in both the cases.

<table>
<thead>
<tr>
<th>Months</th>
<th>Watches</th>
<th>Case 1</th>
<th>Case 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>March(31)</td>
<td>E</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>April(30)</td>
<td>B</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>May(31)</td>
<td>F</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>July(31)</td>
<td>A</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>August(31)</td>
<td>G</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>October(31)</td>
<td>C</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>November(30)</td>
<td>H</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>December(31)</td>
<td>D</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

- As many watches bought between B and G is as same as between F and C. from this statement case 2 is eliminated and case 1 is the final arrangement.

Directions (61-65):
61) Answer: (D)
I ≥ M ≥ J ≥ L=O<N
I) L=I – may be true
II) L ≤ I – may be true
So either I or II follows

62) Answer: (A)
I) I ≤ K --> True
II) B < Z --> False

63) Answer: (B)
I) M > T --> False
II) N ≤ T --> True

64) Answer: (E)
I) F > A --> False
II) C ≥ Z --> False

65) Answer: (C)
I) E ≤ T --> True
II) L > O --> True

Directions (66-70):

66) Answer: (D)

<table>
<thead>
<tr>
<th></th>
<th>532</th>
<th>427</th>
<th>248</th>
<th>386</th>
<th>148</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

67) Answer: (B)

148 248 386 427 532

68) Answer: (D)
Third lowest number – 386, third digit – 6,
Second highest number – 427, second digit – 2
Therefore 6/2 = 3

69) Answer: (A)
Highest number: 532—last two digit – 32
Lowest number: 148 – Last two digit – 48
Therefore 32 * 48 = 1536

70) Answer: (B)
532 – 423
427 – 536

248 – 359
386 – 297
148 – 059

Directions (Q. 71-75):

71) Answer: e
72) Answer: b
73) Answer: d
74) Answer: d
75) Answer: a

- O starts his work in the afternoon.
- Two people were starts their work between O and N.
- Only one person started his work between I and J who starts his work after O.

Case 1

<table>
<thead>
<tr>
<th>Work Starting Time</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 am</td>
<td>N</td>
</tr>
<tr>
<td>10 am</td>
<td>I</td>
</tr>
<tr>
<td>11 am</td>
<td>O</td>
</tr>
<tr>
<td>1 pm</td>
<td>J</td>
</tr>
<tr>
<td>2 pm</td>
<td></td>
</tr>
</tbody>
</table>

Case 2

<table>
<thead>
<tr>
<th>Work Starting Time</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 am</td>
<td></td>
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<tr>
<td>10 am</td>
<td>N</td>
</tr>
<tr>
<td>11 am</td>
<td>I</td>
</tr>
<tr>
<td>1 pm</td>
<td>O</td>
</tr>
<tr>
<td>2 pm</td>
<td>J</td>
</tr>
</tbody>
</table>

- The sum of starting time of M and L is four more than that of K’s starting time.
In case 2 we cannot get the K’s starting time which is four more than that of sum of M and L. So this case is eliminated.
But In case 1, K’s starting time should be 8am, then only it satisfy the given statement and M and L should be either 10 or 2.
- M started his work before L. From this statement M’s starting time should be 10am then L’s starting time should be 2pm.
- Now the Case 1 final arrangement
Direction (76-77):

76) Answer: (A)

\[ FK^2 = 12^2 + 4^2 = 144 + 16 = 160 \]

\[ FK = 4\sqrt{10} \text{m} \]

77) Answer: (C)

Point R is in south west direction with respect to point K.

78) Answer: (D)

According to alphabetical series there is a gap of one alphabet between two in each option.

- C_E_G
- F_H_J
- J_L_N
- RS_U
- D_F_H

Option D only differ from other four combinations

79) Answer: (A)

\[ \text{IMPEACHMENT - MENACE} \]

80) Answer: (C)