Questions

1. Let ABCD be a parallelogram such that the coordinates of its three vertices A, B, and C are (1, 1), (3, 4), and (−2, 8), respectively. Then, the coordinates of Vertex D are _____.

   A. (−4, 5)   B. (4, 5)

   C. (−3, 4)   D. (0, 11)

2. A mixture contains lemon juice and sugar syrup in equal proportion. If a new mixture is created by adding this mixture and sugar syrup in the ratio of 1 : 3, then the ratio of lemon juice and sugar syrup in the new mixture is _____.

   A. 1 : 7   B. 1 : 6

   C. 1 : 5   D. 1 : 4

3. For any real number x, let [x] be the largest integer less than or equal to x. If $\sum_{n=1}^{N} [\frac{1}{5} + \frac{n}{25}] = 25$ then N is _____.

4. Let A be the largest positive integer that divides all the numbers of the form $3^k + 4^k + 5^k$, and B be the largest positive integer that divides all the numbers of the form $4^k + 3(4^k) + 4^{k+2}$, where k is any positive integer. Find the value of (A + B).

5. For natural numbers, x, y, and z, if xy + yz = 19 and yz + xz = 51, then the minimum possible value of xyz is _____.

6. Let a and b be natural numbers. If $a^2 + ab + a = 14$ and $b^2 + ab + b = 28$, then (2a + b) = _____.

   A. 9   B. 8

   C. 7   D. 10

7. In a class of 100 students, 73 like coffee, 80 like tea, and 52 like lemonade. It may be possible that some students do not like any of these three drinks. Find the difference between the maximum and minimum possible number of students who like all three drinks.

   A. 47   B. 48

   C. 53   D. 52

8. A trapezium ABCD has side AD parallel to BC, ∠BAD = 90°, BC = 3 cm, and AD = 8 cm. If the perimeter of this trapezium is 36 cm, then its area, in sq. cm, is

9. Let 0 ≤ a ≤ x ≤ 100 and f(x) = |x − a| + |x − 100| + |x − a − 50|. The maximum value of f(x) becomes 100 when a is equal to _____.

   A. 25   B. 0

   C. 50   D. 100

10. The average of three integers is 13 . When a natural number n is added, the average of these four integers

remains an odd integer. What is the minimum possible value of n?

A. 3

B. 1

C. 4

D. 5

11. The average weight of students in a class increases by 600 g when some new students join the class. If the average weight of the new students is 3 kg more than the average weight of the original students, then what is the ratio of the number of original students to the number of new students?

A. 3 : 1

B. 1 : 4

C. 1 : 2

D. 4 : 1

12. Amal buys 110 kg of syrup and 120 kg of juice, syrup being 20% less costly than juice, per kg. He sells 10 kg of syrup at 10% profit and 20 kg of juice at 20% profit. Mixing the remaining juice and syrup, Amal sells the mixture at ₹308.32 per kg and makes an overall profit of 64%. Then, Amal's cost price of 1 kg of syrup, in rupees, is _____.

13. Ankita buys 4 kg of cashews, 14 kg peanuts, and 6 kg almonds when the cost of 7 kg cashews is the same as that of 30 kg peanuts or 9 kg almonds. She mixes all the three nuts and marks a price for the mixture in order to make a profit of ₹1752. She sells 4 kg of the mixture at this marked price and the remaining at a 20% discount on the marked price, thus making a total profit of ₹744. Then the amount, in rupees, that she had spent in buying almonds is

A. 1440

B. 2520

C. 1680

D. 1176

14. The largest real value of a for which the equation $|x + a| + |x - 1| = 2$ has an infinite number of solutions for x is _____.

A. 2

B. –1

C. 1

D. 0

15. In a village, the ratio of males to females is 5 : The ratio of the number of literate males to literate females is 2 : 3 . The ratio of the number of illiterate males to illiterate females is 4 : 3 . If 3600 males in the village are literate, then what is the total number of females in the village?

16. Trains A and B start travelling at the same time towards each other with constant speeds from stations X and Y, respectively. Train A reaches Station Y in 10 minutes, while Train B takes 9 minutes to reach Station X after meeting Train A. Then the total time taken, in minutes, by train B to travel from station Y to station X is _____.

A.

10

B. 12

C. 6

D. 15

17. Pinky is standing in a queue at a ticket counter. Suppose the ratio of the number of people standing ahead of Pinky to the number of people standing behind her in the queue is 3 : If the total number of people in the

queue is less than 300, then what is the maximum possible number of people standing ahead of Pinky?

18. Let a, b, and c be non-zero real numbers such that $b^2 < 4ac$ and $f(x) = ax^2 + bx + c$. If Set S consists of all integers m such that f(m) < 0, then Set S must necessarily be _____.

    A. a set of all positive integers
    B. a set of all integers

    C. either the empty set or the set of all integers
    D. the empty set

19. All the vertices of a rectangle lie on a circle of radius R. If the perimeter of the rectangle is P, then the area of the rectangle is _____.

    A. $\frac{P^2}{8} - \frac{R^2}{2}$
    B. $\frac{P^2}{2} - 2PR$

    C. $\frac{P^2}{16} - R^2$
    D. $\frac{P^2}{8} - 2R^2$

20. The number of ways of distributing 20 identical balloons among 4 children such that each child gets some balloons but no child gets an odd number of balloons, is _____.

21. Alex invested his savings in two schemes. The simple interest earned on the first scheme at 15% per annum for 4 years is the same as the simple interest earned on the second scheme at 12% per annum for 3 years. Then, the percentage of his savings invested in the first scheme is _____.

    A. 37.5%
    B. 60%

    C. 62.5%
    D. 40%

22. For any natural number n, suppose the sum of the first n terms of an arithmetic progression is $(n + 2n^2)$. If the nth term of the progression is divisible by 9, then what is the smallest possible value of n?

    A. 9
    B. 4

    C. 8
    D. 7

23. **Direction:**

    There are 15 girls and some boys among the graduating students in a class. They are planning a get-together, which can be either a 1-day event, or a 2-day event, or a 3-day event. There are 6 singers in the class, 4 of them are boys. There are 10 dancers in the class, 4 of them are girls. No dancer in the class is a singer.

    Some students are not interested in attending the get-together. Those students who are interested in attending a 3-day event are also interested in attending a 2-day event; those who are interested in attending a 2-day event are also interested in attending a 1-day event.

    The following facts are also known:

    1. All the girls and 80% of the boys are interested in attending a 1-day event. 60% of the boys are interested in attending a 2-day event.

    2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

3. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

4. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

5. The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event.

How many female dancers are interested in attending a 2-day event?

A. 0   B. 2

C. Cannot be determined   D. 1

24. **Direction:**

There are 15 girls and some boys among the graduating students in a class. They are planning a get-together, which can be either a 1-day event, or a 2-day event, or a 3-day event. There are 6 singers in the class, 4 of them are boys. There are 10 dancers in the class, 4 of them are girls. No dancer in the class is a singer.

Some students are not interested in attending the get-together. Those students who are interested in attending a 3-day event are also interested in attending a 2-day event; those who are interested in attending a 2-day event are also interested in attending a 1-day event.

The following facts are also known:

1. All the girls and 80% of the boys are interested in attending a 1-day event. 60% of the boys are interested in attending a 2-day event.

2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

3. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

4. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

5. The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event.

What BEST can be concluded about the number of male dancers who are interested in attending a 1-day event?

A. 5 or 6   B. 4 or 6

C. 5   D. 6

25. **Direction:**

There are 15 girls and some boys among the graduating students in a class. They are planning a get-together, which can be either a 1-day event, or a 2-day event, or a 3-day event. There are 6 singers in the class, 4 of them are boys. There are 10 dancers in the class, 4 of them are girls. No dancer in the class is a singer.

Some students are not interested in attending the get-together. Those students who are interested in attending a 3-day event are also interested in attending a 2-day event; those who are interested in attending a 2-day event are also interested in attending a 1-day event.

The following facts are also known:

1. All the girls and 80% of the boys are interested in attending a 1-day event. 60% of the boys are interested in attending a 2-day event.

2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

3. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

4. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

5. The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event.

What fraction of the class is interested in attending a 2-day event?

A. 7/10   B. 9/13

C. 7/13   D. 2/3

26. **Direction:**

There are 15 girls and some boys among the graduating students in a class. They are planning a get-together, which can be either a 1-day event, or a 2-day event, or a 3-day event. There are 6 singers in the class, 4 of them are boys. There are 10 dancers in the class, 4 of them are girls. No dancer in the class is a singer.

Some students are not interested in attending the get-together. Those students who are interested in attending a 3-day event are also interested in attending a 2-day event; those who are interested in attending a 2-day event are also interested in attending a 1-day event.

The following facts are also known:

1. All the girls and 80% of the boys are interested in attending a 1-day event. 60% of the boys are interested in attending a 2-day event.

2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

3. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

4. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

5. The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event.

Which of the following can be determined from the given information?

I. The number of boys who are interested in attending a 1-day event and are neither dancers nor singers.

II. The number of female dancers who are interested in attending a 1-day event.

A. Neither I nor II   B. Both I and II

C. Only I   D. Only II

27. **Direction:**

There are 15 girls and some boys among the graduating students in a class. They are planning a get-together, which can be either a 1-day event, or a 2-day event, or a 3-day event. There are 6 singers in the class, 4 of them are boys. There are 10 dancers in the class, 4 of them are girls. No dancer in the class is a singer.

Some students are not interested in attending the get-together. Those students who are interested in attending a 3-day event are also interested in attending a 2-day event; those who are interested in attending a 2-day event are also interested in attending a 1-day event.

The following facts are also known:

1. All the girls and 80% of the boys are interested in attending a 1-day event. 60% of the boys are interested in attending a 2-day event.

2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

3. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

4. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

5. The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event.

How many boys are there in the class?

28. **Direction:**

Adhara, Bithi, Chhaya, Dhanavi, Esther, and Fathima are the interviewers in a process that awards funding for new initiatives. Every interviewer individually interviews each of the candidates individually and awards a token only if she recommends funding. A token has a face value of 2, 3, 5, 7, 11, or 13. Each interviewer awards tokens of a single face value only. Once all six interviews are over for a candidate, the candidate receives a funding that is Rs. 1000 times the product of the face values of all the tokens. For example, if a candidate has tokens with face values 2, 5, and 7, then they get a funding of Rs. 1000 × (2 × 5 × 7) = Rs. 70,000.

Pragnyaa, Qahira, Rasheeda, Smera, and Tantra were five candidates who received funding. The funds they received, in descending order, were Rs. 390,000, Rs. 210,000, Rs. 165,000, Rs. 77,000, and Rs. 66,000.

The following additional facts are known:
1. Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.
2. Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.
3. Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

Which of the following could be the amount of funding that Tantra received?

(a) Rs. 66000

(b) Rs. 165000

A. Neither (a) nor (b)   B. Only (a)

C. Both (a) and (b)   D. Only (b)

29. **Direction:**

Adhara, Bithi, Chhaya, Dhanavi, Esther, and Fathima are the interviewers in a process that awards funding for new initiatives. Every interviewer individually interviews each of the candidates individually and awards a token only if she recommends funding. A token has a face value of 2, 3, 5, 7, 11, or 13. Each interviewer awards tokens of a single face value only. Once all six interviews are over for a candidate, the candidate receives a funding that is Rs. 1000 times the product of the face values of all the tokens. For example, if a candidate has tokens with face values 2, 5, and 7, then they get a funding of Rs. 1000 × (2 × 5 × 7) = Rs. 70,000.

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1. Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.
2. Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.
3. Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

How many tokens did Smera receive?

30. **Direction:**

Adhara, Bithi, Chhaya, Dhanavi, Esther, and Fathima are the interviewers in a process that awards funding for new initiatives. Every interviewer individually interviews each of the candidates individually and awards a token only if she recommends funding. A token has a face value of 2, 3, 5, 7, 11, or 13. Each interviewer awards tokens of a single face value only. Once all six interviews are over for a candidate, the candidate receives a funding that is Rs. 1000 times the product of the face values of all the tokens. For example, if a candidate has tokens with face values 2, 5, and 7, then they get a funding of Rs. 1000 × (2 × 5 × 7) = Rs. 70,000.
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2. Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.
3. Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

How many tokens did Chhaya award?

31. **Direction:**

Adhara, Bithi, Chhaya, Dhanavi, Esther, and Fathima are the interviewers in a process that awards funding for new initiatives. Every interviewer individually interviews each of the candidates individually and awards a token only if she recommends funding. A token has a face value of 2, 3, 5, 7, 11, or 13. Each interviewer awards tokens of a single face value only. Once all six interviews are over for a candidate, the candidate receives a funding that is Rs. 1000 times the product of the face values of all the tokens. For example, if a candidate has tokens with face values 2, 5, and 7, then they get a funding of Rs. 1000 × (2 × 5 × 7) = Rs. 70,000.
Pragnyaa, Qahira, Rasheeda, Smera, and Tantra were five candidates who received funding. The funds they received, in descending order, were Rs. 390,000, Rs. 210,000, Rs. 165,000, Rs. 77,000, and Rs. 66,000.

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2. Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.
3. Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

Who among the following definitely received a token from Bithi but not from Dhanavi?

A. Qahira   B. Tantra

C. Pragnyaa   D. Rasheeda

32. **Direction:**

Adhara, Bithi, Chhaya, Dhanavi, Esther, and Fathima are the interviewers in a process that awards funding for new initiatives. Every interviewer individually interviews each of the candidates individually and awards a token only if she recommends funding. A token has a face value of 2, 3, 5, 7, 11, or 13. Each interviewer awards tokens of a single face value only. Once all six interviews are over for a candidate, the candidate receives a funding that is Rs. 1000 times the product of the face values of all the tokens. For example, if a candidate has tokens with face values 2, 5, and 7, then they get a funding of Rs. 1000 × (2 × 5 × 7) = Rs. 70,000.

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2. Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.
3. Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

How many tokens did Qahira receive?

33. **Direction:**

The management of a university hockey team was evaluating performance of four women players - Amla, Bimla, Harita and Sarita for their possible selection in the university team for next year. For this purpose, the management was looking at the number of goals scored by them in the past 8 matches, numbered 1 through 8. The four players together had scored a total of 12 goals in these matches. In the 8 matches, each of them had scored at least one goal. No two players had scored the same total number of goals.

The following facts are known about the goals scored by these four players only. All the questions refer only to the goals scored by these four players.

1. Only one goal was scored in every even numbered match.

2. Harita scored more goals than Bimla.

3. The highest goal scorer scored goals in exactly 3 matches including Match 4 and Match 8.

4. Bimla scored a goal in Match 1 and one each in three other consecutive matches.

5. An equal number of goals were scored in Match 3 and Match 7, which was different from the number of goals scored in either Match 1 or Match 5.

6. The match in which the highest number of goals was scored was unique and it was not Match 5.

If Harita scored goals in one more match as compared to Sarita, which of the following statement(s) is/are necessarily true?

Statement-1: Amla scored goals in consecutive matches.

Statement-2: Sarita scored goals in consecutive matches.

A. None of the statements

B. Statement-1 only

C. Both the statements

D. Statement-2 only

34. **Direction:**

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5. An equal number of goals were scored in Match 3 and Match 7, which was different from the number of goals scored in either Match 1 or Match 5.

6. The match in which the highest number of goals was scored was unique and it was not Match 5.

Which of the following statements is/are false?

Statement 1: In every match at least one player scored a goal.

Statement 2: No two players scored goals in the same number of matches.

A. None of the statements

B. Statement-1 only

C. Statement-2 only

D. Both the statements

35. **Direction:**

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5. An equal number of goals were scored in Match 3 and Match 7, which was different from the number of goals scored in either Match 1 or Match 5.

6. The match in which the highest number of goals was scored was unique and it was not Match 5.

Which of the following statements is/are true?

Statement-1: Amla and Sarita never scored goals in the same match.

Statement-2: Harita and Sarita never scored goals in the same match.

A. Statement-1 only   B. Both the statements

C. None of the statements   D. Statement-2 only

36. **Direction:**

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5. An equal number of goals were scored in Match 3 and Match 7, which was different from the number of goals scored in either Match 1 or Match 5.

6. The match in which the highest number of goals was scored was unique and it was not Match 5.

Which of the following is the correct sequence of goals scored in matches 1, 3, 5, and 7?

A. 3, 1, 2, 1   B. 4, 1, 2, 1

C. 5, 1, 0, 1   D. 3, 2, 1, 2

37. **Direction:**

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5. An equal number of goals were scored in Match 3 and Match 7, which was different from the number of goals scored in either Match 1 or Match 5.

6. The match in which the highest number of goals was scored was unique and it was not Match 5.

How many goals were scored in match 7?

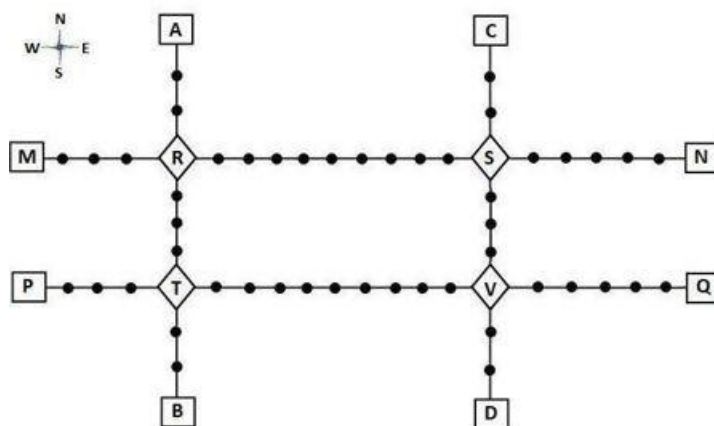A. 3   B. Cannot be determined

C. 2   D. 1
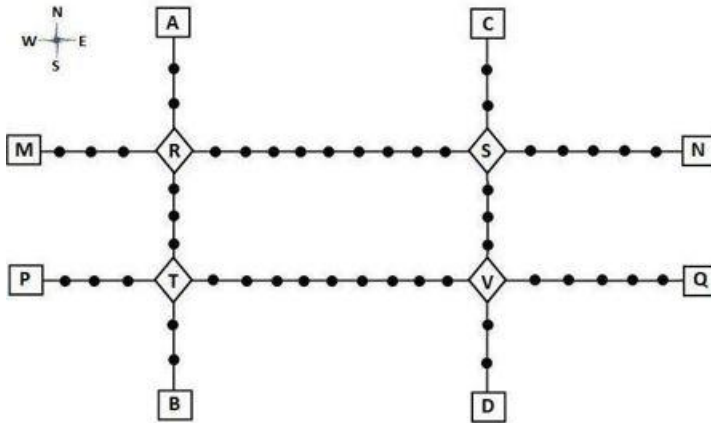
38. **Direction:**

Given above is the schematic map of the metro lines in a city with rectangles denoting terminal stations (e.g. A), diamonds denoting junction stations (e.g. R) and small filled-up circles denoting other stations. Each train runs either in east-west or north-south direction, but not both. All trains stop for 2 minutes at each of the junction stations on the way and for 1 minute at each of the other stations. It takes 2 minutes to

reach the next station for trains going in east-west direction and 3 minutes to reach the next station for trains going in north-south direction. From each terminal station, the first train starts at 6 am; the last trains leave the terminal stations at midnight. Otherwise, during the service hours, there are metro service every 15 minutes in the north-south lines and every 10 minutes in the east-west lines. A train must rest for at least 15 minutes after completing a trip at the terminal station, before it can undertake the next trip in the reverse direction. (All questions are related to this metro service only. Assume that if someone reaches a station exactly at the time a train is supposed to leave, (s)he can catch that train.)

What is the minimum number of trains that are required to provide the service in the city?
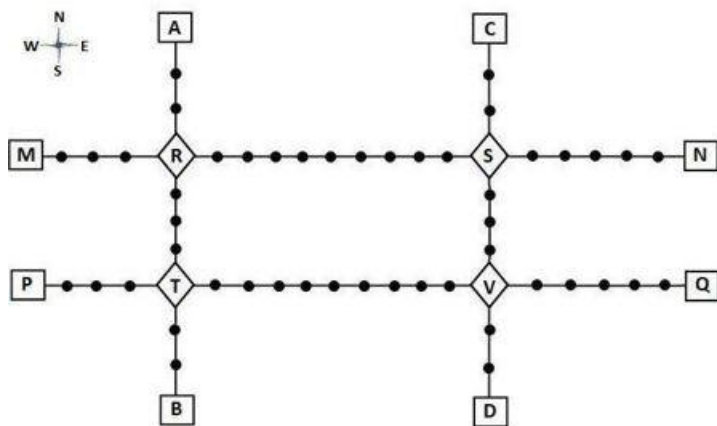
39. **Direction:**

Given above is the schematic map of the metro lines in a city with rectangles denoting terminal stations (e.g. A), diamonds denoting junction stations (e.g. R) and small filled-up circles denoting other stations. Each train runs either in east-west or north-south direction, but not both. All trains stop for 2 minutes at each of the junction stations on the way and for 1 minute at each of the other stations. It takes 2 minutes to reach the next station for trains going in east-west direction and 3 minutes to reach the next station for trains going in north-south direction. From each terminal station, the first train starts at 6 am; the last trains leave the terminal stations at midnight. Otherwise, during the service hours, there are metro service every 15 minutes in the north-south lines and every 10 minutes in the east-west lines. A train must rest for at least 15 minutes after completing a trip at the terminal station, before it can undertake the next trip in the reverse direction. (All questions are related to this metro service only. Assume that if someone reaches a station exactly at the time a train is supposed to leave, (s)he can catch that train.)

What is the minimum number of trains that are required to provide the service on the AB line (considering both north and south directions)?

40. **Direction:**

Given above is the schematic map of the metro lines in a city with rectangles denoting terminal stations (e.g. A), diamonds denoting junction stations (e.g. R) and small filled-up circles denoting other stations. Each train runs either in east-west or north-south direction, but not both. All trains stop for 2 minutes at each of the junction stations on the way and for 1 minute at each of the other stations. It takes 2 minutes to reach the next station for trains going in east-west direction and 3 minutes to reach the next station for trains going in north-south direction. From each terminal station, the first train starts at 6 am; the last trains leave the terminal stations at midnight. Otherwise, during the service hours, there are metro service every 15 minutes in the north-south lines and every 10 minutes in the east-west lines. A train must rest for at least 15 minutes after completing a trip at the terminal station, before it can undertake the next trip in the reverse direction. (All questions are related to this metro service only. Assume that if someone reaches a station exactly at the time a train is supposed to leave, (s)he can catch that train.)

Haripriya is expected to reach station S late. What is the latest time by which she must be ready to board at station S if she must reach station B before 1 am via station R?

A. 11:35 pm

B. 11:39 pm
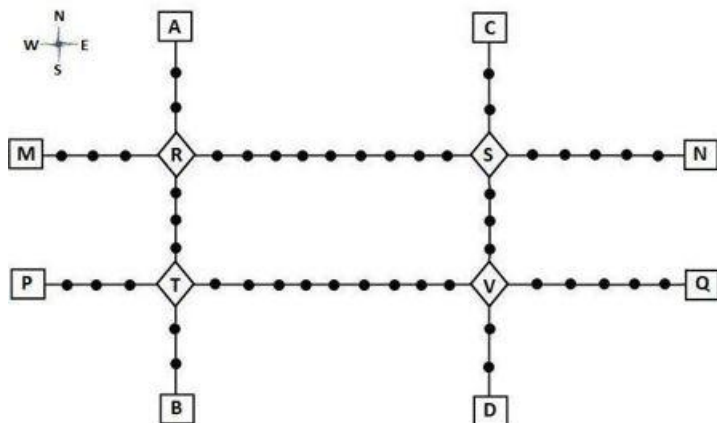
C. 11:43 pm

D. 11:49 pm

41. **Direction:**

Given above is the schematic map of the metro lines in a city with rectangles denoting terminal stations (e.g. A), diamonds denoting junction stations (e.g. R) and small filled-up circles denoting other stations. Each train runs either in east-west or north-south direction, but not both. All trains stop for 2 minutes at each of the junction stations on the way and for 1 minute at each of the other stations. It takes 2 minutes to reach the next station for trains going in east-west direction and 3 minutes to reach the next station for trains going in north-south direction. From each terminal station, the first train starts at 6 am; the last trains

leave the terminal stations at midnight. Otherwise, during the service hours, there are metro service every 15 minutes in the north-south lines and every 10 minutes in the east-west lines. A train must rest for at least 15 minutes after completing a trip at the terminal station, before it can undertake the next trip in the reverse direction. (All questions are related to this metro service only. Assume that if someone reaches a station exactly at the time a train is supposed to leave, (s)he can catch that train.)

If Priya is ready to board a train at 10:25 am from station T, then what is the earliest that she can reach station S?

A. 11:22 am

B. 11:28 am

C. 11:12 am

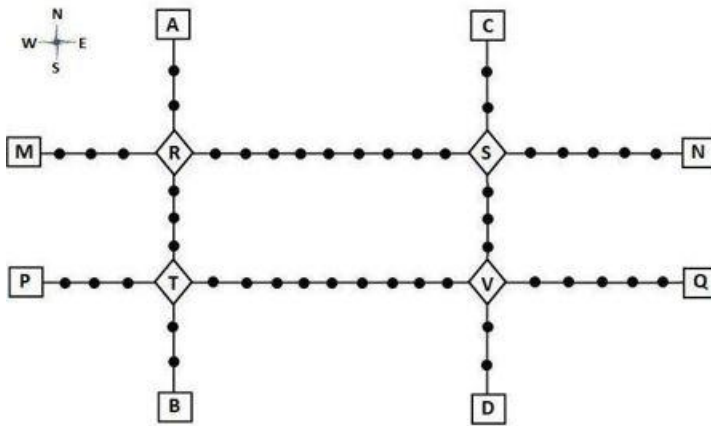D. 11:07 am

42. **Direction:**

Given above is the schematic map of the metro lines in a city with rectangles denoting terminal stations (e.g. A), diamonds denoting junction stations (e.g. R) and small filled-up circles denoting other stations. Each train runs either in east-west or north-south direction, but not both. All trains stop for 2 minutes at each of the junction stations on the way and for 1 minute at each of the other stations. It takes 2 minutes to reach the next station for trains going in east-west direction and 3 minutes to reach the next station for trains going in north-south direction. From each terminal station, the first train starts at 6 am; the last trains leave the terminal stations at midnight. Otherwise, during the service hours, there are metro service every 15 minutes in the north-south lines and every 10 minutes in the east-west lines. A train must rest for at least 15 minutes after completing a trip at the terminal station, before it can undertake the next trip in the reverse direction. (All questions are related to this metro service only. Assume that if someone reaches a station exactly at the time a train is supposed to leave, (s)he can catch that train.)

If Hari is ready to board a train at 8:05 am from station M, then what is the earliest that he can reach station N?

A. 9:01 am

B. 9:13 am

C. 9:06 am

D. 9:11 am

43. The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1). Some company leaders are basing their decisions on locating offices to foster innovation and growth, as their best-performing inventors suffered the greatest productivity losses when their commutes grew longer.

2). Shorter commutes support innovation by giving employees more time in the office and greater opportunities for in-person collaboration, while removing the physical strain of a long commute.

3). This is not always the case: remote work does not automatically lead to greater creativity and productivity as office water-cooler conversations are also very important for innovation.

4). Some see the link between long commutes and productivity as support for work-from-home scenarios, as many workers have grown accustomed to their commute-free arrangements during the pandemic.

44. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Petitioning is an expeditious democratic tradition, used frequently in prior centuries, by which citizens can bring issues directly to governments. As expressions of collective voice, they support procedural democracy by shaping agendas. They can also recruit citizens to causes, give voice to the voteless, and apply the discipline of rhetorical argument that clarifies a point of view. By contrast, elections are limited in several respects: they involve only a few candidates, and thus fall far short of a representative democracy. Further, voters' choices are not specific to particular policies or laws, and elections are episodic, whereas the voice of the people needs to be heard and integrated constantly into democratic government.

A. Petitioning is definitely more representative of the collective voice, and the functioning of democratic government could improve if we relied more on petitioning rather than holding periodic elections.

B. Petitioning has been important to democratic functioning, as it supplements the electoral process by enabling ongoing engagement with the government.

C. Citizens become less inclined to petitioning as it enables vocal citizens to shape political agendas, but this needs to change to strengthen democracies today.

D. By giving citizens greater control over shaping political and democratic agendas, political petitions are invaluable as they represent an ideal form of a representative democracy.

45. The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1). Fish skin collagen has excellent thermo-stability and tensile strength making it ideal for use as bandage that adheres to the skin and adjusts to body movements.

2). Collagen, one of the main structural proteins in connective tissues in the human body, is well known for promoting skin regeneration.

3). Fish skin swims in here as diseases and bacteria that affect fish are different from most human pathogens.

4). The risk of introducing disease agents into other species through the use of pig and cow collagen proteins for wound healing has inhibited its broader applications in the medical field.

46. The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced, would yield a coherent

paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1). The creative element in product design has become of paramount importance as it is one of the few ways a firm or industry can sustain a competitive advantage over its rivals.

2). In fact, the creative element in the value of world industry would be larger still, if we added the contribution of the creative element in other industries, such as the design of tech accessories.

3). The creative industry is receiving a lot of attention today as its growth rate is faster than that of the world economy as a whole.

4). It is for this reason that today's trade issues are increasingly involving intellectual property, as Western countries have an interest in protecting their revenues along with freeing trade in non-tangibles.

47. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

It's not that modern historians of medieval Africa have been ignorant about contacts between Ethiopia and Europe; they just had the power dynamic reversed. The traditional narrative stressed Ethiopia as weak and in trouble in the face of aggression from external forces, so Ethiopia sought military assistance from their fellow Christians to the north. But the real story, buried in plain sight in medieval diplomatic texts, simply had not yet been put together by modern scholars. Recent research pushes scholars of medieval Europe to imagine a much more richly connected medieval world: at the beginning of the so-called Age of Exploration, there is evidence that the kings of Ethiopia were sponsoring their own missions of diplomacy, faith and commerce.

A. Medieval texts have been 'cherry-picked' to promote a view of Ethiopia as weak and in need of Europe's military help with aggressive neighbours, but recent studies reveal it was a well-connected and outward-looking culture.

B. Historians were under the illusion that Ethiopia needed military protection from their neighbours, but in fact the country had close commercial and religious connections with them.

C. Medieval texts have documented how strong connections between the Christian communities of Ethiopia and Europe were invaluable in establishing military and trade links between the two civilisations.

D. Medieval historical sources selectively promoted the narrative that powerful European forces were called on to protect weak African civilisations such as Ethiopia, but this is far from reality.

48. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide in which blank (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: Easing the anxiety and pressure of having a "big day" is part of the appeal for many couples who marry in secret.

Paragraph: Wedding season is upon us and – after two years of Covid chaos that saw nuptials scaled back– you may think the temptation would be to go all out. ___(1)___. But instead of expanding the guest list, many couples are opting to have entirely secret ceremonies. With Covid case numbers remaining high and the cost of living crisis meaning that many couples are feeling the pinch, it's no wonder that some are less than eager to send out invites. ___(2)___. Plus, it can't hurt that in celebrity circles getting married in secret is all the rage. ___(3)___. "I would definitely say that secret weddings are becoming more

common," says Landis Bejar, the founder of a therapy practice, which specialises in helping brides and grooms manage wedding stress. "People are looking for ways to get out of the spotlight and avoid the pomp and circumstance of weddings. ___(4)___. They just want to get to the part where they are married."

A. Option 1   B. Option 2

C. Option 3   D. Option 4

49. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

All that we think we know about how life hangs together is really some kind of illusion that we have perpetrated on ourselves because of our limited vision. What appear to be inanimate objects such as stones turn out not only to be alive in the same way that we are, but also in many infinitesimal ways to be affected by stimuli just as humans are. The distinction between animate and inanimate simply cannot be made when you enter the world of quantum mechanics and try to determine how those apparent subatomic particles, of which you and everything else in our universe is composed, are all tied together. The point is that physics and metaphysics show there is a pattern to the universe that goes beyond our capacity to grasp it with our brains.

A. The inanimate world is both sentient and cognizant like its animate counterpart.

B. Arbitrary distinctions between inanimate and animate objects disappear at the scale at which quantum mechanics works.

C. Quantum physics indicates that an astigmatic view of reality results in erroneous assumptions about the universe.

D. The effect of stimuli is similar in inanimate objects when compared to animate objects or living beings.

50. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide in which blank (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: Having made citizens more and less knowledgeable than their predecessors, the Internet has proved to be both a blessing and a curse.

Paragraph: Never before has a population, nearly all of whom has enjoyed at a least a secondary school education, been exposed to so much information, whether in newspapers and magazines or through YouTube, Google, and Facebook. ___(1)___. Yet it is not clear that people today are more knowledgeable than their barely literate predecessors. Contemporary advances in technology offered more serious and inquisitive students access to realms of knowledge previously unimaginable and unavailable. ___(2)___. But such readily available knowledge leads many more students away from serious study, the reading of actual texts, and toward an inability to write effectively and grammatically. ___(3)___. It has let people choose sources that reinforce their opinions rather than encouraging them to question inherited beliefs. ___(4)___.

A. Option 1   B. Option 2

C. Option 3   D. Option 4

51. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

Stoicism was founded in 300 BC by the Greek philosopher Zeno and survived into the Roman era until about AD 300. According to the Stoics, emotions consist of two movements. The first movement is the immediate feeling and other reactions (e.g., physiological response) that occur when a stimulus or event occurs. For instance, consider what could have happened if an army general accused Marcus Aurelius of treason in front of other officers. The first movement for Marcus may have been (internal) surprise and anger in response to this insult, accompanied perhaps by some involuntary physiological and expressive responses such as face flushing and a movement of the eyebrows. The second movement is what one does next about the emotion. Second movement behaviors occur after thinking and are under one's control. Examples of second movements for Marcus might have included a plot to seek revenge, actions signifying deference and appeasement, or perhaps proceeding as he would have proceeded whether or not this event occurred: continuing to lead the Romans in a way that Marcus Aurelius believed best benefited them. In the Stoic view, choosing a reasoned, unemotional response as the second movement is the only appropriate response.

The Stoics believed that to live the good life and be a good person, we need to free ourselves of nearly all desires such as too much desire for money, power, or sexual gratification. Prior to second movements, we can consider what is important in life. Money, power, and excessive sexual gratification are not important. Character, rationality, and kindness are important. The Epicureans, first associated with the Greek philosopher Epicurus . . . held a similar view, believing that people should enjoy simple pleasures, such as good conversation, friendship, food, and wine, but not be indulgent in these pursuits and not follow passion for those things that hold no real value like power and money. As Oatley (2004) states, "the Epicureans articulated a view—enjoyment of relationship with friends, of things that are real rather than illusory, simple rather than artificially inflated, possible rather than vanishingly unlikely—that is certainly relevant today" . . . In sum, these ancient Greek and Roman philosophers saw emotions, especially strong ones, as potentially dangerous. They viewed emotions as experiences that needed to be [reined] in and controlled.

As Oatley (2004) points out, the Stoic idea bears some similarity to Buddhism. Buddha, living in India in the 6th century BC, argued for cultivating a certain attitude that decreases the probability of (in Stoic terms) destructive second movements. Through meditation and the right attitude, one allows emotions to happen to oneself (it is impossible to prevent this), but one is advised to observe the emotions without necessarily acting on them; one achieves some distance and decides what has value and what does not have value. Additionally, the Stoic idea of developing virtue in oneself, of becoming a good person, which the Stoics believed we could do because we have a touch of the divine, laid the foundation for the three monotheistic religions: Judaism, Christianity, and Islam . . . As with Stoicism, tenets of these religions include controlling our emotions lest we engage in sinful behavior.

"Through meditation and the right attitude, one allows emotions to happen to oneself (it is impossible to prevent this), but one is advised to observe the emotions without necessarily acting on them; one achieves some distance and decides what has value and what does not have value." In the context of the passage, which one of the following is not a possible implication of the quoted statement?

A. The observation of emotions in a distant manner corresponds to the second movement referred to earlier in the passage.

B. Meditation allows certain out-of-body experiences that permit us to gain the distance necessary to control our emotions.

C. "Meditation and the right attitude", in this instance, implies an initially passive reception of all experiences.

D. Emotional responses can make it difficult to distinguish valuable experiences from valueless experiences.

52. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

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The Stoics believed that to live the good life and be a good person, we need to free ourselves of nearly all desires such as too much desire for money, power, or sexual gratification. Prior to second movements, we can consider what is important in life. Money, power, and excessive sexual gratification are not important. Character, rationality, and kindness are important. The Epicureans, first associated with the Greek philosopher Epicurus . . . held a similar view, believing that people should enjoy simple pleasures, such as good conversation, friendship, food, and wine, but not be indulgent in these pursuits and not follow passion for those things that hold no real value like power and money. As Oatley (2004) states, "the Epicureans articulated a view—enjoyment of relationship with friends, of things that are real rather than illusory, simple rather than artificially inflated, possible rather than vanishingly unlikely—that is certainly relevant today" . . . In sum, these ancient Greek and Roman philosophers saw emotions, especially strong ones, as potentially dangerous. They viewed emotions as experiences that needed to be [reined] in and controlled.

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Which one of the following statements, if false, could be seen as contradicting the facts/arguments in the passage?

A. In the Epicurean view, indulging in simple pleasures is not desirable.

B. Despite practising meditation and cultivating the right attitude, emotions cannot ever be controlled.

C. In the Stoic view, choosing a reasoned, unemotional response as the first movement is an appropriate response to emotional situations.

D. The Greek philosopher Zeno survived into the Roman era until about AD 300

53. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

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On the basis of the passage, which one of the following statements can be regarded as true?

A. There were no Stoics in India at the time of the Roman civilisation.

B. The Stoics valorised the pursuit of money, power, and sexual gratification.

C. The Epicureans believed in controlling all emotions.

D. The Stoic influences can be seen in multiple religions.

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Which one of the following statements would be an accurate inference from the example of Marcus Aurelius?

A. Marcus Aurelius was one of the leaders of the Roman army.

B. Marcus Aurelius plotted revenge in his quest for justice.

C. Marcus Aurelius was humiliated by the accusation of treason in front of the other officers.

D. Marcus Aurelius was a Stoic whose philosophy survived into the Roman era.

55. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

Stories concerning the Undead have always been with us. From out of the primal darkness of Mankind's earliest years, come whispers of eerie creatures, not quite alive (or alive in a way which we can understand), yet not quite dead either. These may have been ancient and primitive deities who dwelt deep in the surrounding forests and in remote places, or simply those deceased who refused to remain in their tombs and who wandered about the countryside, physically tormenting and frightening those who were still alive. Mostly they were ill-defined—strange sounds in the night beyond the comforting glow of the fire, or a shape, half-glimpsed in the twilight along the edge of an encampment. They were vague and indistinct, but they were always there with the power to terrify and disturb. They had the power to touch the minds of our early ancestors and to fill them with dread. Such fear formed the basis of the earliest tales although the source and exact nature of such terrors still remained very vague.

And as Mankind became more sophisticated, leaving the gloom of their caves and forming themselves into recognizable communities—towns, cities, whole cultures—so the Undead travelled with them, inhabiting their folklore just as they had in former times. Now they began to take on more definite shapes. They became walking cadavers; the physical embodiment of former deities and things which had existed alongside Man since the Creation. Some still remained vague and ill-defined but, as Mankind strove to explain the horror which it felt towards them, such creatures emerged more readily into the light.

In order to confirm their abnormal status, many of the Undead were often accorded attributes, which defied the natural order of things—the power to transform themselves into other shapes, the ability to sustain themselves by drinking human blood, and the ability to influence human minds across a distance. Such powers—described as supernatural—only [lent] an added dimension to the terror that humans felt regarding them.

And it was only natural, too, that the Undead should become connected with the practice of magic. From very early times, Shamans and witchdoctors had claimed at least some power and control over the spirits of departed ancestors, and this has continued down into more "civilized" times. Formerly, the invisible spirits and forces that thronged around men's earliest encampments, had spoken "through" the tribal Shamans but now, as entities in their own right, they were subject to magical control and could be physically summoned by a competent sorcerer. However, the relationship between the magician and an Undead creature was often a very tenuous and uncertain one. Some sorcerers might have even become Undead entities once they died, but they might also have been susceptible to the powers of other magicians when they did.

From the Middle Ages and into the Age of Enlightenment, theories of the Undead continued to grow and develop. Their names became more familiar—werewolf, vampire, ghoul—each one certain to strike fear into the hearts of ordinary humans.

Which one of the following observations is a valid conclusion to draw from the statement, "From out of the primal darkness of Mankind's earliest years, come whispers of eerie creatures, not quite alive (or alive in a way which we can understand), yet not quite dead either."?

A. We can understand the lives of the eerie creatures in Mankind's early years through their whispers in the darkness.

B. Mankind's primal years were marked by creatures alive with eerie whispers, but seen only in the darkness.

C. Long ago, eerie creatures used to whisper in the primal darkness that they were not quite dead.

D. Mankind's early years were marked by a belief in the existence of eerie creatures that were neither quite alive nor dead.

56. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

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And as Mankind became more sophisticated, leaving the gloom of their caves and forming themselves into recognizable communities—towns, cities, whole cultures—so the Undead travelled with them, inhabiting their folklore just as they had in former times. Now they began to take on more definite shapes. They became walking cadavers; the physical embodiment of former deities and things which had existed alongside Man since the Creation. Some still remained vague and ill-defined but, as Mankind strove to explain the horror which it felt towards them, such creatures emerged more readily into the light.

In order to confirm their abnormal status, many of the Undead were often accorded attributes, which defied the natural order of things—the power to transform themselves into other shapes, the ability to sustain themselves by drinking human blood, and the ability to influence human minds across a distance. Such powers—described as supernatural—only [lent] an added dimension to the terror that humans felt regarding them.

And it was only natural, too, that the Undead should become connected with the practice of magic. From very early times, Shamans and witchdoctors had claimed at least some power and control over the spirits of departed ancestors, and this has continued down into more "civilized" times. Formerly, the invisible spirits and forces that thronged around men's earliest encampments, had spoken "through" the tribal Shamans but now, as entities in their own right, they were subject to magical control and could be physically summoned by a competent sorcerer. However, the relationship between the magician and an Undead creature was often a very tenuous and uncertain one. Some sorcerers might have even become Undead entities once they died, but they might also have been susceptible to the powers of other magicians when they did.

From the Middle Ages and into the Age of Enlightenment, theories of the Undead continued to grow and develop. Their names became more familiar—werewolf, vampire, ghoul—each one certain to strike fear into the hearts of ordinary humans.

"In order to confirm their abnormal status, many of the Undead were often accorded attributes, which defied the natural order of things . . ." Which one of the following best expresses the claim made in this statement?

A. The Undead are deified in nature's order by giving them divine attributes.

B. According the Undead an abnormal status is to reject the natural order of things.

C. Human beings conceptualise the Undead as possessing abnormal features.

D. The natural attributes of the Undead are rendered abnormal by changing their status.

57. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

Stories concerning the Undead have always been with us. From out of the primal darkness of Mankind's earliest years, come whispers of eerie creatures, not quite alive (or alive in a way which we can understand), yet not quite dead either. These may have been ancient and primitive deities who dwelt deep in the surrounding forests and in remote places, or simply those deceased who refused to remain in their tombs and who wandered about the countryside, physically tormenting and frightening those who were still alive. Mostly they were ill-defined—strange sounds in the night beyond the comforting glow of the fire, or a shape, half-glimpsed in the twilight along the edge of an encampment. They were vague and indistinct, but they were always there with the power to terrify and disturb. They had the power to touch the minds of our early ancestors and to fill them with dread. Such fear formed the basis of the earliest tales although the source and exact nature of such terrors still remained very vague.

And as Mankind became more sophisticated, leaving the gloom of their caves and forming themselves into recognizable communities—towns, cities, whole cultures—so the Undead travelled with them, inhabiting their folklore just as they had in former times. Now they began to take on more definite shapes. They became walking cadavers; the physical embodiment of former deities and things which had existed alongside Man since the Creation. Some still remained vague and ill-defined but, as Mankind strove to explain the horror which it felt towards them, such creatures emerged more readily into the light.

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From the Middle Ages and into the Age of Enlightenment, theories of the Undead continued to grow and develop. Their names became more familiar—werewolf, vampire, ghoul—each one certain to strike fear into the hearts of ordinary humans.

All of the following statements, if false, could be seen as being in accordance with the passage, EXCEPT:

A. the transition from the Middle Ages to the Age of Enlightenment saw new theories of the Undead.

B. the Undead remained vague and ill-defined, even as Mankind strove to understand the horror they inspired.

C. the growing sophistication of Mankind meant that humans stopped believing in the Undead.

D. the relationship between Shamans and the Undead was believed to be a strong and stable one.

58. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

Stories concerning the Undead have always been with us. From out of the primal darkness of Mankind's earliest years, come whispers of eerie creatures, not quite alive (or alive in a way which we can understand), yet not quite dead either. These may have been ancient and primitive deities who dwelt deep in the surrounding forests and in remote places, or simply those deceased who refused to remain in their tombs and who wandered about the countryside, physically tormenting and frightening those who were still alive. Mostly they were ill-defined—strange sounds in the night beyond the comforting glow of the fire, or a shape, half-glimpsed in the twilight along the edge of an encampment. They were vague and indistinct, but they were always there with the power to terrify and disturb. They had the power to touch the minds of our early ancestors and to fill them with dread. Such fear formed the basis of the earliest tales although the source and exact nature of such terrors still remained very vague.

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From the Middle Ages and into the Age of Enlightenment, theories of the Undead continued to grow and develop. Their names became more familiar—werewolf, vampire, ghoul—each one certain to strike fear into the hearts of ordinary humans.

Which one of the following statements best describes what the passage is about?

A. The passage discusses the evolution of theories of the Undead from primitive thinking to the Age of Enlightenment.

B. The passage describes the failure of human beings to fully comprehend their environment.

C. The writer describes the ways in which the Undead come to be associated with Shamans and the practice of magic.

D. The writer discusses the transition from primitive thinking to the Age of Enlightenment.

59. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

The Chinese have two different concepts of a copy. Fangzhipin . . . are imitations where the difference from the original is obvious. These are small models or copies that can be purchased in a museum shop, for example. The second concept for a copy is fuzhipin . . . They are exact reproductions of the original, which, for the Chinese, are of equal value to the original. It has absolutely no negative connotations. The discrepancy with regard to the understanding of what a copy is has often led to misunderstandings and arguments between China and Western museums. The Chinese often send copies abroad instead of originals, in the firm belief that they are not essentially different from the originals. The rejection that then comes from the Western museums is perceived by the Chinese as an insult. . . .

The Far Eastern notion of identity is also very confusing to the Western observer. The Ise Grand Shrine [in Japan] is 1,300 years old for the millions of Japanese people who go there on pilgrimage every year. But in reality this temple complex is completely rebuilt from scratch every 20 years. . . .

The cathedral of Freiburg Minster in southwest Germany is covered in scaffolding almost all year round. The sandstone from which it is built is a very soft, porous material that does not withstand natural erosion by rain and wind. After a while, it crumbles. As a result, the cathedral is continually being examined for damage, and eroded stones are replaced. And in the cathedral's dedicated workshop, copies of the damaged sandstone figures are constantly being produced. Of course, attempts are made to preserve the stones from the Middle Ages for as long as possible. But at some point they, too, are removed and replaced with new stones.

Fundamentally, this is the same operation as with the Japanese shrine, except in this case the production of a replica takes place very slowly and over long periods of time. . . . In the field of art as well, the idea of an unassailable original developed historically in the Western world. Back in the 17th century [in the West], excavated artworks from antiquity were treated quite differently from today. They were not restored in a way that was faithful to the original. Instead, there was massive intervention in these works, changing their appearance. . . .

It is probably this intellectual position that explains why Asians have far fewer scruples about cloning than Europeans. The South Korean cloning researcher Hwang Woo-suk, who attracted worldwide attention with his cloning experiments in 2004, is a Buddhist. He found a great deal of support and followers among Buddhists, while Christians called for a ban on human cloning. . . . Hwang legitimised his cloning experiments with his religious affiliation: 'I am Buddhist, and I have no philosophical problem with cloning. And as you know, the basis of Buddhism is that life is recycled through reincarnation. In some ways, I think, therapeutic cloning restarts the circle of life.'

The value that the modern West assigns to "an unassailable original" has resulted in all of the following EXCEPT:

A. it discourages them from simultaneous displays of multiple copies of a painting.

B. it discourages them from making interventions in ancient art.

C. it allows regular employment for certain

D. it discourages them from carrying out human

craftsmen.   cloning.

60. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each
    question.

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from the original is obvious. These are small models or copies that can be purchased in a museum shop,
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arguments between China and Western museums. The Chinese often send copies abroad instead of
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cloning. And as you know, the basis of Buddhism is that life is recycled through reincarnation. In some
ways, I think, therapeutic cloning restarts the circle of life.'

Based on the passage, which one of the following copies would a Chinese museum be unlikely to consider
as having less value than the original?

A. Pablo Picasso's photograph of Vincent van
Gogh's original painting, printed to exactly the same
scale.

B. Pablo Picasso's painting of Vincent van Gogh's
original painting, bearing Picasso's signature.

C. Pablo Picasso's painting of Vincent van Gogh's original painting, identical in every respect.

D. Pablo Picasso's miniaturised, but otherwise faithful and accurate painting of Vincent van Gogh's original painting.

61. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

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Which one of the following scenarios is unlikely to follow from the arguments in the passage?

A. A 17th century French artist who adhered to a Christian worldview would need to be completely true to the original intent of a painting when restoring it.

B. A 21st century Christian scientist is likely to oppose cloning because of his philosophical orientation.

C. A 20th century Japanese Buddhist monk would value a reconstructed shrine as the original.

D. A 17th century British painter would have no problem adding personal touches when restoring an ancient Roman painting.

62. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

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Which one of the following statements does not correctly express the similarity between the Ise Grand Shrine and the cathedral of Freiburg Minster?

A. Both were built as places of worship.

B. Both can be regarded as very old structures.

C. Both will one day be completely rebuilt.

D. Both are continually undergoing restoration.

63. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

Critical theory of technology is a political theory of modernity with a normative dimension. It belongs to a tradition extending from Marx to Foucault and Habermas according to which advances in the formal claims of human rights take center stage while in the background centralization of ever more powerful public institutions and private organizations imposes an authoritarian social order.

Marx attributed this trajectory to the capitalist rationalization of production. Today it marks many institutions besides the factory and every modern political system, including so-called socialist systems. This trajectory arose from the problems of command over a disempowered and deskilled labor force; but everywhere [that] masses are organized – whether it be Foucault's prisons or Habermas's public sphere – the same pattern prevails. Technological design and development is shaped by this pattern as the material base of a distinctive social order. Marcuse would later point to a "project" as the basis of what he called rather confusingly "technological rationality." Releasing technology from this project is a democratic political task.

In accordance with this general line of thought, critical theory of technology regards technologies as an environment rather than as a collection of tools. We live today with and even within technologies that determine our way of life. Along with the constant pressures to build centers of power, many other social values and meanings are inscribed in technological design. A hermeneutics of technology must make explicit the meanings implicit in the devices we use and the rituals they script. Social histories of technologies such as the bicycle, artificial lighting or firearms have made important contributions to this type of analysis. Critical theory of technology attempts to build a methodological approach on the lessons of these histories.

As an environment, technologies shape their inhabitants. In this respect, they are comparable to laws and customs. Each of these institutions can be said to represent those who live under their sway through privileging certain dimensions of their human nature. Laws of property represent the interest in ownership and control. Customs such as parental authority represent the interest of childhood in safety and growth. Similarly, the automobile represents its users in so far as they are interested in mobility. Interests such as these constitute the version of human nature sanctioned by society.

This notion of representation does not imply an eternal human nature. The concept of nature as non-identity in the Frankfurt School suggests an alternative. On these terms, nature is what lies at the limit of history, at the point at which society loses the capacity to imprint its meanings on things and control them effectively. The reference here is, of course, not to the nature of natural science, but to the lived nature in which we find ourselves and which we are. This nature reveals itself as that which cannot be totally encompassed by the machinery of society. For the Frankfurt School, human nature, in all its transcending force, emerges out of a historical context as that context is [depicted] in illicit joys, struggles and pathologies. We can perhaps admit a less romantic . . . conception in which those dimensions of human nature recognized by society are also granted theoretical legitimacy.

Which one of the following statements could be inferred as supporting the arguments of the passage?

A. It is not human nature, but human culture that is represented by institutions such as law and custom.

B. Technologies form the environmental context and shape the contours of human society.

C. The romantic conception of nature referred to by the passage is the one that requires theoretical

D. Nature decides the point at which society loses its capacity to control history.

legitimacy.

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Which one of the following statements best reflects the main argument of the fourth paragraph of the passage?

A. Automobiles represent the interest in mobility   B. Technology, laws, and customs are comparable,

present in human nature.

but dissimilar phenomena.

C. Technology, laws, and customs are not unlike each other if considered as institutions.

D. Technological environments privilege certain dimensions of human nature as effectively as laws and customs.

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All of the following claims can be inferred from the passage, EXCEPT:

A. the significance of parental authority to children's safety does not therefore imply that parental authority is a permanent aspect of human nature.

B. analyses of technologies must engage with their social histories to be able to reveal their implicit and explicit meanings for us.

C. the critical theory of technology argues that, as issues of human rights become more prominent, we lose sight of the ways in which the social order becomes more authoritarian.

D. technologies seek to privilege certain dimensions of human nature at a high cost to lived nature.

66. **Direction:** The passage below is accompanied by a set of questions. Choose the best answer to each question.

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pathologies. We can perhaps admit a less romantic . . . conception in which those dimensions of human nature recognized by society are also granted theoretical legitimacy.

Which one of the following statements contradicts the arguments of the passage?

A. Marx's understanding of the capitalist rationalisation of production and Marcuse's understanding of a "project" of "technological rationality" share theoretical inclinations.

B. The problems of command over a disempowered and deskilled labour force gave rise to similar patterns of the capitalist rationalisation of production wherever masses were organised.

C. Paradoxically, the capitalist rationalisation of production is a mark of so-called socialist systems as well.

D. Masses are organised in patterns set by Foucault's prisons and Habermas' public sphere.

Solutions

1.   Correct Answer : A

Sol 1.   As ABCD is a parallelogram, its opposite sides are parallel.

So, the slope of the opposite sides will be equal.

So, the slope of AB and slope of DC are the same.

Thus, $\frac{8-y}{-2-x} = \frac{3}{2} \Rightarrow 16 - 2y = -6 - 3x$

$\Rightarrow 3x - 2y = -22 \ldots(1)$

Slope of CB = Slope of DA

So, $\frac{-4}{5} = \frac{1-y}{1-x} \Rightarrow -4 + 4x = 5 - 5y$

$\Rightarrow 4x + 5y = 9 \ldots(2)$

On solving equations (1) and (2), we get x = –4 and y = 5

So, the coordinates of Vertex D are (–4, 5).

2.   Correct Answer : A

Sol 2.   Let the quantity of the given mixture and sugar syrup in the new mixture be x and 3x, respectively.

So, the quantity of the lemon juice and sugar syrup in the initial mixture will be $\frac{x}{2}$ and $\frac{x}{2}$, respectively.

Hence, the ratio of lemon juice and sugar syrup in the new mixture $= \frac{x}{2} : \frac{x}{2} + 3x$

$= \frac{x}{2} : \frac{7x}{2} = 1 : 7$

3.   Correct Answer : 44

Sol 3.   When n = 1 to 19, the count of n is 19 and the value of $[\frac{1}{5} + \frac{n}{25}] = 0$

When n = 20 to 44, the count of n is 25 and the value of $[\frac{1}{5} + \frac{n}{25}] = 1$

When n = 45 to 69, the count of n is 25 and the value of $[\frac{1}{5} + \frac{n}{25}] = 2$

Clearly, when N = 44, we see that $\sum_{n=1}^{N} [\frac{1}{5} + \frac{n}{25}] = 19(0) + 25(1) = 25$

Therefore, N = 44

4.   Correct Answer : 82

Sol 4.   Putting k = 1 in $3^k + 4^k + 5^k$, we get the value as 12.

Putting k = 2, we get 50.

That does not mean 2 always divides $3^k + 4^k + 5^k$

First of all, we will check if $3^k + 4^k + 5^k$ is even for any value of k.

3^k is always odd, 4^k is always even, and 5^k is always odd.

So, odd + even + odd = Even

Thus, $3^k + 4^k + 5^k$ is even for any value of k.

2 is the highest integer that divides all the numbers of the form $3^k + 4^k + 5^k$

So, A = 2

$4^k + 3(4^k) + 4^{k+2} = 4^k(1 + 3 + 16) = 4^k(20)$

At k = 1, the value of $4^k(20)$ is 80.

$4^k(20)$ can also be written as $4^{k-1}(80)$.

For any other k, $4^k + 3(4^k) + 4^{k+2}$ is divisible by 80.

So, 80 is the highest positive integer that divides all the numbers of the form $4^k + 3(4^k) + 4^{k+2}$

So, B = 80

Hence, A + B = 2 + 80 = 82

5.   Correct Answer : 34

Sol 5.   As xy + yz = 19 ⇒ y(x + z) = 19

Observe that 19 is a prime number and can't be factorised further.

Since x, y, and z are all natural numbers, the value of (x + z) cannot be 1. (It should at least be 2.)

Therefore, y = 1 and (x + z) = 19

As yz + xz = 51

z(y + x) = 51

z(x + 1) = 51

51 = 17 × 3

Case 1:

z = 17; x + 1 = 3

x = 2, y = 1, z = 17

xyz = 2 × 1 × 17 = 34

Case 2:

z = 3; x + 1 = 17

x = 16, y = 1, z = 3

xyz = 16 × 1 × 3 = 48

Hence, the minimum value of x × y × z = 34

6.   Correct Answer : B

Sol 6. a^2 + ab + a = 14 …(1)

b^2 + ab + b = 28 …(2)

On adding both the equations we get,

$a^2 + b^2$ + 2ab + (a + b) = 42

$(a + b)^2 + (a + b) = 42$

(a + b)(a + b + 1) = 42

As a and b are natural numbers, (a + b) will also be a natural number.

So, let (a + b) be 'n'.

So, n(n + 1) = 42

⇒ n = 6

So, a + b = 6

From eq 1, a(a + b) + a = 14

6a + a = 14 ⇒ a = 2

⇒ b = 4

So, (2a + b) = 8

7.   Correct Answer : A

Sol 7. Let n, s, d, and t be the number of students who like none of the drinks, exactly one drink, exactly 2 drinks, and all three drinks, respectively.

It is given,

$n + s + d + t = 100$ ...... (1)

$s + 2d + 3t = 73 + 80 + 52$

$s + 2d + 3t = 205$ ...... (2)

Eq. (2) – (1), we get the following:

$d + 2t - n = 105$

The maximum value t can take is 52, i.e., $t = 52$, $d = 1$, and $n = 0$

The minimum value t can take is 5, i.e., $t = 5$, $d = 95$, and $n = 0$

(This also satisfies equation (1).)

Thus, the required difference $= 52 - 5 = 47$

8. Correct Answer : 66

Sol 8.
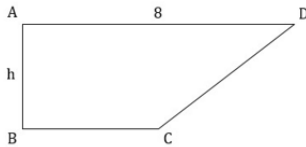
From the figure, we can write:

$8 + h + 3 + DC = 36$

$h + DC = 25$

h, 5, and DC form a Pythagorean triplet.

12, 5, and 13 works, since $12 + 13 = 25$ holds

Therefore, $h = 12$

Area $= 12 \times 3 + \frac{1}{2} \times 12 \times 5 = 66$ sq. units

9. Correct Answer : C

Sol 9. $x \geq a$, so $|x - a| = x - a$

$x < 100$, so $|x - 100| = 100 - x$

$f(x) = (x - a) + (100 - x) + |x - a - 50| = 100$

or, $|x - a - 50| = a$
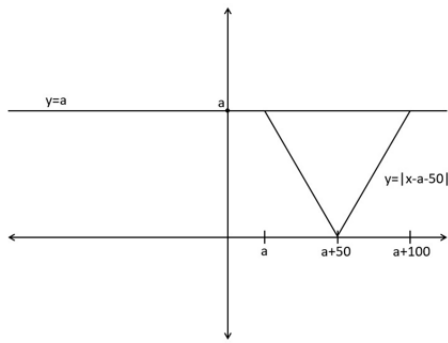
From the graph, we can can see that

When x = a, then |x − a − 50| = a or, a = 50

Similarly, when x = a + 100, then |x − a − 50| = a, or a = 50

So, the value of a is 50 when f(x) is 100.

10.   Correct Answer : D

Sol 10.   Let the four integers be a, b, c, and d.

The average of a, b, and c is 13.

If d is also 13, the average will be unchanged. The new average is also 13.

If d is 13 + 4, the average will increase by 1. The new average is 14.

If d is 13 + 4(2), the average will increase by 2. The new average is 15.

If d is 13 + 4(x), the average will increase by x. The new average is 13 + x.

If d is 13 − 4, the average will decrease by 1. The new average is 12.

If d is 13 − 4(2), the average will decrease by 2. The new average is 11.

If d is 13 − 4(x), the average will decrease by x. The new average is 13 - x.

We observe that for the average to remain odd and an integer, d should be $13 \pm 8x$, where x is a whole number.

Now, we have to find the smallest value of d; so, we have to find the maximum value of x such that 13 − 8x is a natural number.

So, the maximum value of x is 1.

Hence, the minimum value of 13 − 8x = 5

11.   Correct Answer : D

Sol 11.   Let there be 'a' number of students in the class initially, and their average weight be 'n' kg.

Let 'b' number of students join the class having an average weight of 'n + 3' kg.

This excess weight of 3 kg brought in by each new student is shared among all the students such that each of them increases by 0.6 kg.

$\Rightarrow 3b = 0.6(a + b)$

$\Rightarrow 3b = 0.6\,a + 0.6\,b$

$\Rightarrow 2.4b = 0.6a$

$\Rightarrow a = 4b$

$\Rightarrow a : b = 4 : 1$

The ratio of the number of original students to the number of new students is 4 : 1.

12.   Correct Answer : 160

Sol 12.   Let the price of juice be Rs. x per kg.

Since the cost price of syrup is 20% less than the cost price of juice, the cost price of syrup is 0.8x per kg.

Total cost price of syrup = $110 \times 0.8x = ₹88x$

Total cost price of juice = $120 \times x = ₹120x$

Total cost price = $88x + 120x = ₹208x$

Since the overall profit percentage is 64%,

Total profit = $0.64(208x) = 133.12x$

Profit generated on selling 10 kg of syrup which costs ₹0.8x per kg at 10% profit = $0.1 \times 10 \times 0.8x = 0.8x$

Profit generated on selling 20 kg of juice which costs ₹x per kg at 20% profit = $0.2 \times 20 \times x = 4x$

The remaining profit $(133.12x – (0.8x + 4x) = 128.32x)$ is generated by selling 100 kg of syrup and 100 kg of juice at ₹308.32 per kg.

The total selling price of 100 kg of syrup and 100 kg of juice is $200 \times 308.32 = 2(30832)$

Cost price of 100 kg of syrup = $0.8x \times 100 = ₹80x$

Cost price of 100 kg of juice = $x \times 100 = ₹100x$

Total cost price = $₹80x + ₹100x = ₹180x$

Profit = Selling price – Cost price

$\Rightarrow 128.32x = 2(30832) - 180x$

$\Rightarrow 308.32x = 2(30832)$

$\Rightarrow x = 200$

Cost price of syrup per kg = 0.8 x = 0.8(200) = ₹160

13.   Correct Answer : C

Sol 13.   Total mixture = 14 + 6 + 7 = 24 kg

Let the average price per kg of the mixture be 'x'.

So, profit made per kg of the mixture $= \frac{1752}{24} = Rs.\,73$

So, she marks the price at Rs. (x + 73) per kg

According to the question,

$4(x + 73) + 20 \times 0.8 \times (x + 73) = 24x + 744$

$\Rightarrow 4x + 292 + 16x + 1168 = 24x + 744$

$\Rightarrow 4x = 716 \Rightarrow x = 179$

So, total amount she spent on nuts = 24x = 24(179) = Rs. 4296

Given that the cost of 7 kg cashews is the same as that of 30 kg peanuts or 9 kg almonds.

So, 7C = 30P = 9A = 630k (say)

where C, P, and A are the cost prices of one kg of cashews, peanuts, and almonds, respectively.

So, C = 90k, P = 21k, A = 70k

Thus, 4(90k) + 14(21k) + 6(70k) = 4296

$\Rightarrow$ 360k + 294k + 420k = 4296

$\Rightarrow$ k = 4

So, A = 70k = 280

So, the amount she spent in buying almonds = 6(280) = Rs. 1680

14.   Correct Answer : C

Sol 14.   In the question, it is given that the equation |x + a| + |x − 1| = 2 has an infinite number of solutions for any value of x. This is possible when x in |x + a| and x in |x − 1| cancels out.

Case 1:

x + a < 0, x – 1 ≥ 0

–a – x + x – 1 = 2

a = –3

Case 2:

x + a ≥ 0 and x – 1 < 0

x + a – x + 1 = 2

a = 1

The largest value of a is 1.

15.   Correct Answer : 43200

Sol 15. Let the number of males to females in the village be 5x and 4x, respectively.

Let the number of literate males to literate females in the village be 2y and 3y, respectively.

Let the number of illiterate males to illiterate females in the village be 4z and 3z, respectively.

So, $\frac{2y + 4z}{3y + 3z} = \frac{5}{4} \Rightarrow 8y + 16z = 15y + 15z$

$\Rightarrow 7y = z$

According to the question,

$\Rightarrow 2y = 3600 \Rightarrow y = 1800$

So, the total number of females in the village is 3y + 3z = 3y + 21y = 24y = 24(1800) = 43200

16.   Correct Answer : D

Sol 16. Let the meeting point between stations X and Y be Z.

Let the time taken by Train A to travel from X to Z be 't' minutes.

Then the time taken by Train B to travel from Y to Z will also be 't' minutes, as they both start at the same time.

Time taken by Train A to travel from Z to Y = (10 – t) minutes

Time taken by Train B to travel from Z to X = 9 minutes

The speeds of both trains are constant throughout the journey.

So, the ratio of the time taken by trains A and B to travel the distance from X to Z will be the same as the ratio of the time taken by trains A and B to travel the distance from Z to Y.

So, $\frac{t}{9} = \frac{10-t}{t} \Rightarrow t^2 = 90 - 9t \Rightarrow t^2 + 9t - 90 = 0$

(t + 15)(t – 6) = 0

So, t = 6 minutes

So, the time taken by Train B to travel from Station Y to Station X = 9 + 6 = 15 minutes.

17.   Correct Answer : 111

Sol 17.   Let's assume that there are 3a number of people ahead of Pinky, then the number of people behind her will be 5a.

The total number of people in the queue is 8a + 1.

Since the total number of people in the queue is less than 300,

8a + 1 < 300

a≤ 37

To find the maximum number of people ahead of Pinky, we take the maximum possible value of a, which is 37.

Therefore, the maximum number of people ahead of Pinky is 3 × 37 = 111

18.   Correct Answer : C

Sol 18.   It is given that f(x) = ax^2 + bx + c and $b^2 < 4ac$.

This means that f(x) has imaginary roots and therefore, no real roots at all.

If a function has no real roots, the graph of the function can never touch the x-axis, because touching the x-axis means, for some real value of x, the value of f(x) is 0. It means that the function has roots for some real value of x.

When we graph this quadratic function f(x), we get a parabola that should never touch the x-axis. Such a parabola should be completely above the x-axis or completely below the x-axis.
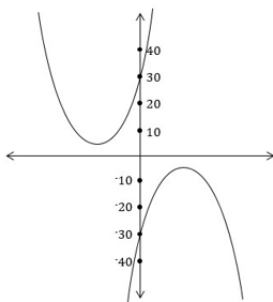
If it is completely above the x-axis:

● It means that the value of f(x) is always positive for any value of x.

The set of values of x that satisfies the condition that f(x) < 0 is an empty set.

● If it is completely below the x-axis:

It means that the value of f(x) is always negative for any value of x.

The set of values of x that satisfies the condition that f(x) < 0 is the set of all real numbers.

Since Set S contains all the integers 'm' that satisfy the above conditions, Set S is either an empty set or the set of all integers.

19.   Correct Answer : D

Sol 19.
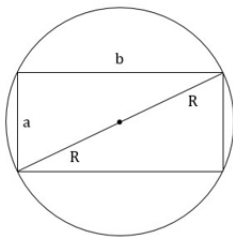
Let the length and breadth of the rectangle be 'l' and 'b', respectively.

Area of the rectangle = lb

Perimeter of the rectangle, P = 2(l + b)

$l + b = \frac{P}{2}$

Squaring both sides we get,

$(l + b)^2 = \frac{P^2}{4} \Rightarrow l^2 + b^2 + 2lb = \frac{P^2}{4} \ldots (1)$

Also, the vertices of the rectangle subtend an angle of 90°.

So, $l^2 + b^2 = (2R)^2 \ldots (2)$

Using equations (1) and (2),

$4R^2 + 2lb = \frac{P^2}{4} \Rightarrow 2lb = \frac{P^2}{4} - 4R^2$

$\Rightarrow lb = \frac{P^2}{8} - 2R^2$

20.   Correct Answer : 84

Sol 20.   Since each child gets an even number of non-zero balloons, let us assume that they get 2a, 2b, 2c, and 2d numbers of balloons, respectively, where a, b, c, and d are natural numbers.

There are 20 balloons to be distributed.

Therefore, 2a + 2b + 2c + 2d = 20

a + b + c + d = 10

So, the number of ways = $10 - 1C_{3-1} = 9C_3 = 84$ ways

21.   Correct Answer : A

Sol 21.   Let the investments of Alex be 'a' and 'b' in the two schemes.

So, interest earned on the first scheme = $0.15 \times a \times 4$

Interest earned in the second scheme = $0.12 \times b \times 3$

$0.15 \times a \times 4 = 0.12 \times b \times 3$

$20a = 12b \Rightarrow a : b = 3 : 5$

This means, 3/8 of Alex's savings was invested in the first scheme, which is 37.5%.

22.   Correct Answer : D

Sol 22.   It is given that, $S_n = (n + 2n^2)$

Let the nth term be t_n.

$t_n = S_n - S_{n-1}$

So, $t_n = (n + 2n^2) - \{(n-1) + 2(n-1)^2\}$

$t_n = 4n - 1$

Now, the smallest value of n such that 4n – 1 is divisible by 9 will be 7,

Thus, n = 7.

23.   Correct Answer : A

Sol 23.   Let the number of boys who are neither dancers nor singers be x.

	Boys	Girls
Singers	4	2
Dancers	6	4
None	x	9

Total number of boys = x + 10

Using points 1, 3, and 4:

Point 3: 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

So, the number of girls who are interested in attending a 2-day event can only be 5 or 10 because if it is any other value than 5 or 10 but less than 15, then the total number of girls will not be an integer.

Table 1	Boys	Girls
Interested in attending a 1-day event	0.8x + 8	15
Interested in attending a 2-day event	0.6x + 6	5 or 10
Interested in attending a 3-day event	4 + 2 + y	0

According to statement 3:

70% of $(0.6x + 6) = x - z$ (Here z can be 0, 1, 2, 3, and so on. 'z' is taken to account for the boys who are interested in 1-day or 3-day events, and they are neither singers nor dancers)

So, $0.42x + 4.2 = x - z$

$\Rightarrow 0.58x = 4.2 + z$

$\Rightarrow 58x = 420 + 100z$

The above equation will satisfy for the least value of x as 40 and the corresponding value of z will be 19.

The next possible value of x and z will be (140, 77); (240, 135); (340, 193); ….

Suppose $x = 140$ and $z = 77$

From table 1, number of boys who are interested in attending a 2-day event $= 84 + 6 = 90$

From point 3, since 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers, so the remaining 30% of the boys who are interested in attending a 2-day event must be either singers or dancers.

Now, 30% of 90 = 27, which is not possible because the total number of boys who are singers and dancers is only 10.

So, we can conclude that x cannot be 140, and thus the higher values of x will also be not possible.

So, $x = 40$

Updating Table 1 according to the value of x as 40, we get:

Total number of boys $= x + 10 = 50$

Table 1	Boys	Girls
Interested in attending a 1-day event	40	15
Interested in attending a 2-day event	30	5 or 10
Interested in attending a 3-day event	4 + 2 + y	0

Using point 1:

80% of the boys are interested in attending a 1-day event.

So, the number of boys who are not interested in attending the event = 20% of 50 = 10

Now, using the given data and above conclusions, we can draw a table as below:

	Boys			Girls		
	Singers	Dancers	None	Singers	Dancers	None
3-day event	4	2	y	0	0	0
2-day event	(0 + 4)	(2 + 3)	21	2	0	3
1-day event	(0 + 4)	5 or (5 + 1)	31 or 30	(0 + 2)	4	(3 + 6)

0 female dancers are interested in attending a 2-day event.

Hence, option A is the correct answer.

24.   Correct Answer : A

Sol 24.   Let the number of boys who are neither dancers nor singers be x.

	Boys	Girls
Singers	4	2
Dancers	6	4
None	x	9

Total number of boys = x + 10

Using points 1, 3, and 4:

Point 3: 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

So, the number of girls who are interested in attending a 2-day event can only be 5 or 10 because if it is any other value than 5 or 10 but less than 15, then the total number of girls will not be an integer.

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So, 0.42x + 4.2 = x - z

$\Rightarrow$ 0.58x = 4.2 + z

$\Rightarrow$ 58x = 420 + 100z

The above equation will satisfy for the least value of x as 40 and the corresponding value of z will be 19.

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Suppose x = 140 and z = 77

From table 1, number of boys who are interested in attending a 2-day event = 84 + 6 = 90

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2-day event	(0 + 4)	(2 + 3)	21	2	0	3
1-day event	(0 + 4)	5 or (5 + 1)	31 or 30	(0 + 2)	4	(3 + 6)

From the final table, it can be either 5 or 6.

Hence, option A is the correct answer.

25.   Correct Answer : C

Sol 25.   Let the number of boys who are neither dancers nor singers be x.

	Boys	Girls
Singers	4	2
Dancers	6	4
None	x	9

Total number of boys = x + 10

Using points 1, 3, and 4:

Point 3: 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

So, the number of girls who are interested in attending a 2-day event can only be 5 or 10 because if it is any other value than 5 or 10 but less than 15, then the total number of girls will not be an integer.

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⇒ 58x = 420 + 100z

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1-day event	(0 + 4)	5 or (5 + 1)	31 or 30	(0 + 2)	4	(3 + 6)

30 boys and 5 girls are interested in attending a 2-day event.

Required fraction $= \dfrac{30 + 5}{50 + 15} = \dfrac{7}{13}$

Hence, option C is the correct answer.

26.   Correct Answer : D

Sol 26.   Let the number of boys who are neither dancers nor singers be x.

	Boys	Girls
Singers	4	2
Dancers	6	4
None	x	9

Total number of boys = x + 10

Using points 1, 3, and 4:

Point 3: 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

So, the number of girls who are interested in attending a 2-day event can only be 5 or 10 because if it is any other value than 5 or 10 but less than 15, then the total number of girls will not be an integer.

Table 1	Boys	Girls
Interested in attending a 1-day event	0.8x + 8	15
Interested in attending a 2-day event	0.6x + 6	5 or 10
Interested in attending a 3-day event	4 + 2 + y	0

According to statement 3:

70% of (0.6x + 6) = x - z (Here z can be 0, 1, 2, 3, and so on. 'z' is taken to account for the boys who are interested in 1-day or 3-day events, and they are neither singers nor dancers)

So, 0.42x + 4.2 = x - z

$\Rightarrow$ 0.58x = 4.2 + z

$\Rightarrow$ 58x = 420 + 100z

The above equation will satisfy for the least value of x as 40 and the corresponding value of z will be 19.

The next possible value of x and z will be (140, 77); (240, 135); (340, 193); ….

Suppose x = 140 and z = 77

From table 1, number of boys who are interested in attending a 2-day event = 84 + 6 = 90

From point 3, since 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers, so the remaining 30% of the boys who are interested in attending a 2-day event must be either singers or dancers.

Now, 30% of 90 = 27, which is not possible because the total number of boys who are singers and dancers is only 10.

So, we can conclude that x cannot be 140, and thus the higher values of x will also be not possible.

So, x = 40

Updating Table 1 according to the value of x as 40, we get:

Total number of boys = x + 10 = 50

Table 1	Boys	Girls
Interested in attending a 1-day event	40	15
Interested in attending a 2-day event	30	5 or 10
Interested in attending a 3-day event	4 + 2 + y	0

Using point 1:

80% of the boys are interested in attending a 1-day event.

So, the number of boys who are not interested in attending the event = 20% of 50 = 10

Now, using the given data and above conclusions, we can draw a table as below:

	Boys			Girls		
	Singers	Dancers	None	Singers	Dancers	None
3-day event	4	2	y	0	0	0
2-day event	(0 + 4)	(2 + 3)	21	2	0	3
1-day event	(0 + 4)	5 or (5 + 1)	31 or 30	(0 + 2)	4	(3 + 6)

From the above table, only II can be determined using the given information.

Hence, option D is the correct answer.

27.   Correct Answer : 50

Sol 27.   Let the number of boys who are neither dancers nor singers be x.

	Boys	Girls
Singers	4	2
Dancers	6	4
None	x	9

Total number of boys = x + 10

Using points 1, 3, and 4:

Point 3: 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

So, the number of girls who are interested in attending a 2-day event can only be 5 or 10 because if it is any other value than 5 or 10 but less than 15, then the total number of girls will not be an integer.

Table 1	Boys	Girls
Interested in attending a 1-day event	0.8x + 8	15
Interested in attending a 2-day event	0.6x + 6	5 or 10
Interested in attending a 3-day event	4 + 2 + y	0

According to statement 3:

70% of $(0.6x + 6) = x - z$ (Here z can be 0, 1, 2, 3, and so on. 'z' is taken to account for the boys who are interested in 1-day or 3-day events, and they are neither singers nor dancers)

So, $0.42x + 4.2 = x - z$

$\Rightarrow 0.58x = 4.2 + z$

$\Rightarrow 58x = 420 + 100z$

The above equation will satisfy for the least value of x as 40 and the corresponding value of z will be 19.

The next possible value of x and z will be (140, 77); (240, 135); (340, 193); ....

Suppose x = 140 and z = 77

From table 1, number of boys who are interested in attending a 2-day event = 84 + 6 = 90

From point 3, since 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers, so the remaining 30% of the boys who are interested in attending a 2-day event must be either singers or dancers.

Now, 30% of 90 = 27, which is not possible because the total number of boys who are singers and dancers is only 10.

So, we can conclude that x cannot be 140, and thus the higher values of x will also be not possible.

So, x = 40

Updating Table 1 according to the value of x as 40, we get:

Total number of boys = x + 10 = 50

Table 1	Boys	Girls
Interested in attending a 1-day event	40	15
Interested in attending a 2-day event	30	5 or 10
Interested in attending a 3-day event	4 + 2 + y	0

Using point 1:

80% of the boys are interested in attending a 1-day event.

So, the number of boys who are not interested in attending the event = 20% of 50 = 10

Now, using the given data and above conclusions, we can draw a table as below:

	Boys			Girls		
	Singers	Dancers	None	Singers	Dancers	None
3-day event	4	2	y	0	0	0
2-day event	(0 + 4)	(2 + 3)	21	2	0	3
1-day event	(0 + 4)	5 or (5 + 1)	31 or 30	(0 + 2)	4	(3 + 6)

There are 50 boys in the class.

Hence, 50 is the correct answer.

28.   Correct Answer : C

Sol 28. $390000 = 1000 \times (2 \times 3 \times 5 \times 13)$

$210000 = 1000 \times (2 \times 3 \times 5 \times 7)$

$165000 = 1000 \times (3 \times 5 \times 11)$

$77000 = 1000 \times (7 \times 11)$

$66000 = 1000 \times (2 \times 3 \times 11)$

Now, tokens numbered 2 are awarded three times. Token numbered 3 is awarded four times. Token numbered 5 is awarded three times. Token numbered 7 is awarded two times. Token numbered 11 is awarded three times and token numbered 13 is awarded one time only.

Using point 1: Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.

From the above point 1, Fathima would have awarded tokens to four candidates. This is only possible if she awarded tokens numbered 3.

From the above point 1, Adhara awarded tokens to only 1 candidate, i.e., Pragnyaa. This is only possible if she awarded tokens numbered 13.

This also confirms that Pragnyaa received the highest amount, i.e., 390000.

Using point 2: Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.

Highest number of tokens awarded = 4 (390000 or 210000)

Rashida cannot receive the amount 390000 because that is received by Pragnyaa.

So, Rasheeda received 210000 or tokens numbered 2, 3, 5, and 7.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther			-		
Fathima	3	-	3	3	3
Total Amount	390000		210000		

We can further confirm that Esther awarded tokens numbered 11 (because Rasheeda received tokens numbered 2, 3, 5, and 7 but she did not receive any token from Esther. So, Esther cannot award the tokens numbered 2, 3, 5, or 7. Also, Esther cannot award the tokens numbered 13 because they are awarded by Adhara. So, we are left with only the token numbered 11, which is awarded by Esther).

Token numbered 11 is awarded three times but Pragnya and Rasheeda did not receive it. So, Qahira, Smera, and Tantra would have received the token numbered 11.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000		210000		

From the above table, we can say that neither Smara nor Tantra can receive the amount 77000. So, Qahira received the amount of Rs. 77000.

So, Qahira will receive 1 more token, which will be numbered 7.

Using point 3: Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

From point 3, Dhanavi awarded a token to Qahira but not to Smera. So, the only possibility is that Dhanavi awarded tokens numbered 7.

Since Pragnyaa did not receive token numbered 7, Dhanavi did not award any token to Pragnyaa.

Using the above conclusions, the final table will be:

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi	2 or 5	-	2 or 5		
Chhaya	2 or 5	-	2 or 5		
Dhanavi	-	7	7	-	-
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000	77000	210000	165000 or 66000	165000 or 66000

From the final table, Tantra received either Rs. 165000 or Rs. 66000.

Hence, option C is the correct answer.

29.   Correct Answer : 3

Sol 29. $390000 = 1000 \times (2 \times 3 \times 5 \times 13)$

$210000 = 1000 \times (2 \times 3 \times 5 \times 7)$

$165000 = 1000 \times (3 \times 5 \times 11)$

$77000 = 1000 \times (7 \times 11)$

$66000 = 1000 \times (2 \times 3 \times 11)$

Now, tokens numbered 2 are awarded three times. Token numbered 3 is awarded four times. Token numbered 5 is awarded three times. Token numbered 7 is awarded two times. Token numbered 11 is awarded three times and token numbered 13 is awarded one time only.

Using point 1: Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.

From the above point 1, Fathima would have awarded tokens to four candidates. This is only possible if she awarded tokens numbered 3.

From the above point 1, Adhara awarded tokens to only 1 candidate, i.e., Pragnyaa. This is only possible if she awarded tokens numbered 13.

This also confirms that Pragnyaa received the highest amount, i.e., 390000.

Using point 2: Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.

Highest number of tokens awarded = 4 (390000 or 210000)

Rashida cannot receive the amount 390000 because that is received by Pragnyaa.

So, Rasheeda received 210000 or tokens numbered 2, 3, 5, and 7.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther			-		
Fathima	3	-	3	3	3
Total Amount	390000		210000		

We can further confirm that Esther awarded tokens numbered 11 (because Rasheeda received tokens numbered 2, 3, 5, and 7 but she did not receive any token from Esther. So, Esther cannot award the tokens numbered 2, 3, 5, or 7. Also, Esther cannot award the tokens numbered 13 because they are awarded by Adhara. So, we are left with only the token numbered 11, which is awarded by Esther).

Token numbered 11 is awarded three times but Pragnya and Rasheeda did not receive it. So, Qahira, Smera, and Tantra would have received the token numbered 11.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000		210000		

From the above table, we can say that neither Smara nor Tantra can receive the amount 77000. So, Qahira received the amount of Rs. 77000.

So, Qahira will receive 1 more token, which will be numbered 7.

Using point 3: Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

From point 3, Dhanavi awarded a token to Qahira but not to Smera. So, the only possibility is that Dhanavi awarded tokens numbered 7.

Since Pragnyaa did not receive token numbered 7, Dhanavi did not award any token to Pragnyaa.

Using the above conclusions, the final table will be:

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi	2 or 5	-	2 or 5		
Chhaya	2 or 5	-	2 or 5		
Dhanavi	-	7	7	-	-
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000	77000	210000	165000 or 66000	165000 or 66000

From the above table, Smera received either the amount of Rs. 165000 or Rs. 66000. In both the cases, 3 tokens were awarded.

Thus, Smera received 3 tokens.

Hence, 3 is the correct answer.

30.   Correct Answer : 3

Sol 30. $390000 = 1000 \times (2 \times 3 \times 5 \times 13)$

$210000 = 1000 \times (2 \times 3 \times 5 \times 7)$

$165000 = 1000 \times (3 \times 5 \times 11)$

$77000 = 1000 \times (7 \times 11)$

$66000 = 1000 \times (2 \times 3 \times 11)$

Now, tokens numbered 2 are awarded three times. Token numbered 3 is awarded four times. Token numbered 5 is awarded three times. Token numbered 7 is awarded two times. Token numbered 11 is awarded three times and token numbered 13 is awarded one time only.

Using point 1: Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.

From the above point 1, Fathima would have awarded tokens to four candidates. This is only possible if she awarded tokens numbered 3.

From the above point 1, Adhara awarded tokens to only 1 candidate, i.e., Pragnyaa. This is only possible if she awarded tokens numbered 13.

This also confirms that Pragnyaa received the highest amount, i.e., 390000.

Using point 2: Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.

Highest number of tokens awarded = 4 (390000 or 210000)

Rashida cannot receive the amount 390000 because that is received by Pragnyaa.

So, Rasheeda received 210000 or tokens numbered 2, 3, 5, and 7.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther			-		
Fathima	3	-	3	3	3
Total Amount	390000		210000		

We can further confirm that Esther awarded tokens numbered 11 (because Rasheeda received tokens numbered 2, 3, 5, and 7 but she did not receive any token from Esther. So, Esther cannot award the tokens numbered 2, 3, 5, or 7. Also, Esther cannot award the tokens numbered 13 because they are awarded by Adhara. So, we are left with only the token numbered 11, which is awarded by Esther).

Token numbered 11 is awarded three times but Pragnya and Rasheeda did not receive it. So, Qahira, Smera, and Tantra would have received the token numbered 11.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000		210000		

From the above table, we can say that neither Smara nor Tantra can receive the amount 77000. So, Qahira received the amount of Rs. 77000.

So, Qahira will receive 1 more token, which will be numbered 7.

Using point 3: Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

From point 3, Dhanavi awarded a token to Qahira but not to Smera. So, the only possibility is that Dhanavi awarded tokens numbered 7.

Since Pragnyaa did not receive token numbered 7, Dhanavi did not award any token to Pragnyaa.

Using the above conclusions, the final table will be:

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi	2 or 5	-	2 or 5		
Chhaya	2 or 5	-	2 or 5		
Dhanavi	-	7	7	-	-
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000	77000	210000	165000 or 66000	165000 or 66000

From the above table, Chhaya awarded either the tokens numbered 2 or 5. Both of these tokens were awarded three times.

Thus, Chhaya awarded 3 tokens.

Hence, 3 is the correct answer.

31.   Correct Answer : C

Sol 31. $390000 = 1000 \times (2 \times 3 \times 5 \times 13)$

$210000 = 1000 \times (2 \times 3 \times 5 \times 7)$

$165000 = 1000 \times (3 \times 5 \times 11)$

$77000 = 1000 \times (7 \times 11)$

$66000 = 1000 \times (2 \times 3 \times 11)$

Now, tokens numbered 2 are awarded three times. Token numbered 3 is awarded four times. Token numbered 5 is awarded three times. Token numbered 7 is awarded two times. Token numbered 11 is awarded three times and token numbered 13 is awarded one time only.

Using point 1: Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.

From the above point 1, Fathima would have awarded tokens to four candidates. This is only possible if she awarded tokens numbered 3.

From the above point 1, Adhara awarded tokens to only 1 candidate, i.e., Pragnyaa. This is only possible if she awarded tokens numbered 13.

This also confirms that Pragnyaa received the highest amount, i.e., 390000.

Using point 2: Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.

Highest number of tokens awarded = 4 (390000 or 210000)

Rashida cannot receive the amount 390000 because that is received by Pragnyaa.

So, Rasheeda received 210000 or tokens numbered 2, 3, 5, and 7.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther			-		
Fathima	3	-	3	3	3
Total Amount	390000		210000		

We can further confirm that Esther awarded tokens numbered 11 (because Rasheeda received tokens numbered 2, 3, 5, and 7 but she did not receive any token from Esther. So, Esther cannot award the tokens numbered 2, 3, 5, or 7. Also, Esther cannot award the tokens numbered 13 because they are awarded by Adhara. So, we are left with only the token numbered 11, which is awarded by Esther).

Token numbered 11 is awarded three times but Pragnya and Rasheeda did not receive it. So, Qahira, Smera, and Tantra would have received the token numbered 11.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000		210000		

From the above table, we can say that neither Smara nor Tantra can receive the amount 77000. So, Qahira received the amount of Rs. 77000.

So, Qahira will receive 1 more token, which will be numbered 7.

Using point 3: Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

From point 3, Dhanavi awarded a token to Qahira but not to Smera. So, the only possibility is that Dhanavi awarded tokens numbered 7.

Since Pragnyaa did not receive token numbered 7, Dhanavi did not award any token to Pragnyaa.

Using the above conclusions, the final table will be:

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi	2 or 5	-	2 or 5		
Chhaya	2 or 5	-	2 or 5		
Dhanavi	-	7	7	-	-
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000	77000	210000	165000 or 66000	165000 or 66000

From the above final table, Pragnyaa definitely received a token from Bithi but not from Dhanavi.

Hence, option C is the correct answer.

32. Correct Answer : 2

Sol 32. $390000 = 1000 \times (2 \times 3 \times 5 \times 13)$

$210000 = 1000 \times (2 \times 3 \times 5 \times 7)$

$165000 = 1000 \times (3 \times 5 \times 11)$

$77000 = 1000 \times (7 \times 11)$

$66000 = 1000 \times (2 \times 3 \times 11)$

Now, tokens numbered 2 are awarded three times. Token numbered 3 is awarded four times. Token numbered 5 is awarded three times. Token numbered 7 is awarded two times. Token numbered 11 is awarded three times and token numbered 13 is awarded one time only.

Using point 1: Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.

From the above point 1, Fathima would have awarded tokens to four candidates. This is only possible if she awarded tokens numbered 3.

From the above point 1, Adhara awarded tokens to only 1 candidate, i.e., Pragnyaa. This is only possible if she awarded tokens numbered 13.

This also confirms that Pragnyaa received the highest amount, i.e., 390000.

Using point 2: Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.

Highest number of tokens awarded = 4 (390000 or 210000)

Rashida cannot receive the amount 390000 because that is received by Pragnyaa.

So, Rasheeda received 210000 or tokens numbered 2, 3, 5, and 7.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther			-		
Fathima	3	-	3	3	3
Total Amount	390000		210000		

We can further confirm that Esther awarded tokens numbered 11 (because Rasheeda received tokens numbered 2, 3, 5, and 7 but she did not receive any token from Esther. So, Esther cannot award the tokens numbered 2, 3, 5, or 7. Also, Esther cannot award the tokens numbered 13 because they are awarded by Adhara. So, we are left with only the token numbered 11, which is awarded by Esther).

Token numbered 11 is awarded three times but Pragnya and Rasheeda did not receive it. So, Qahira, Smera, and Tantra would have received the token numbered 11.

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi			2/5/7		
Chhaya			2/5/7		
Dhanavi			2/5/7		
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000		210000		

From the above table, we can say that neither Smara nor Tantra can receive the amount 77000. So, Qahira received the amount of Rs. 77000.

So, Qahira will receive 1 more token, which will be numbered 7.

Using point 3: Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

From point 3, Dhanavi awarded a token to Qahira but not to Smera. So, the only possibility is that Dhanavi awarded tokens numbered 7.

Since Pragnyaa did not receive token numbered 7, Dhanavi did not award any token to Pragnyaa.

Using the above conclusions, the final table will be:

	Pragnyaa	Qahira	Rasheeda	Smera	Tantra
Adhara	13	-	-	-	-
Bithi	2 or 5	-	2 or 5		
Chhaya	2 or 5	-	2 or 5		
Dhanavi	-	7	7	-	-
Esther	-	11	-	11	11
Fathima	3	-	3	3	3
Total Amount	390000	77000	210000	165000 or 66000	165000 or 66000

From the above table, Qahira received 2 tokens.

Hence, 2 is the correct answer.

33.   Correct Answer : A

Sol 33.   Using points 2 and 4:

Bimla scored 4 goals (1 goal in match 1 and one each in three consecutive matches). Thus, Harita will have scored 5 goals.

Because each of them scored a different number of goals. (Remaining goals = 12 - 4 - 5 = 3, i.e., Amla and Sarita will have scored 1 and 2 goals in any order).

From the above conclusion, Harita will be the highest goal scorer. Now she scored in exactly three matches (according to point 3) including match 4 and match 8. It is also given that only one goal was scored in every even-numbered match (point 1).

So, Harita scored 1 goal each in match 4 and match 8.

Thus, none of Amla, Bimla, and Sarita scored any goal in matches 4 and 8.

Match	Amla	Bimla	Harita	Sarita
1		1		
2				
3				
4	-	-	1	-
5				
6				
7				
8	-	-	1	-

Now, Bimla scored 1 goal each in three consecutive matches. These three matches will definitely be matches 5, 6, and 7 because there is no other possibility.

So, Bimla did not score any goal in matches 2 and 3.

Also, none of Amla, Harita and Sarita will score in match 6 (using point 1).

Match	Amla	Bimla	Harita	Sarita
1		1		
2		-		
3		-		
4	-	-	1	-
5		1		
6	-	1	-	-
7		1		
8	-	-	1	-

Using point 3:

Harita will have scored 3 goals in exactly 1 more match. Now this match cannot be the match numbered 3 or 7 or 5 (using points 5 and 6).

So, Harita will have scored 3 goals in match 1 (It cannot be match 2 because only 1 goal was scored in every even-numbered match)

Match	Amla	Bimla	Harita	Sarita
1		1	3	
2		-	-	
3		-	-	
4	-	-	1	-
5		1	-	
6	-	1	-	-
7		1	-	
8	-	-	1	-

Clearly, the highest number of goals are scored in match 1.

Till now, the places of 9 goals are filled. We are left with 3 more goals (out of which 1 goal is scored in match 2). So, we are left with 2 goals only.

Using point 5:

There is only one possibility, i.e., 1 goal each is scored in matches 3 and 7 and 2 goals are scored in match 5. (The number of goals scored in matches 3 and 7 cannot be 2 each because we are not left with that many number of goals).

So, the remaining 2 goals are distributed equally among match 3 and match 5.

Thus, we can conclude that neither Amla nor Sarita scored any goal in match 1.

Updating the table as per the above conclusions:

This is the final table. We will solve the questions accordingly.

Match	Amla	Bimla	Harita	Sarita	Total Goals
1	-	1	3	-	4
2		-	-		1
3		-	-		1
4	-	-	1	-	1
5		1	-		2
6	-	1	-	-	1
7	-	1	-	-	1
8	-	-	1	-	1

From the final table:

Bimla scored goals in 4 matches.

Harita scored goals in 3 matches.

According to the question,

Sarita would have scored in 2 matches and Amla would have scored in 1 match.

Statement 1: Amla scored goals in consecutive matches.

Amla scored goals in 1 match only.

So, the above statement is not true.

Statement 2: Sarita scored goals in consecutive matches.

This is not necessarily true because Sarita could have scored in either matches (2, 5) or (3, 5) or (2, 3). Thus the above statement is not necessarily true.

So, none of the two statements are necessarily true.

Hence, option A is the correct answer.

34.   Correct Answer : A

Sol 34.   Using points 2 and 4:

Bimla scored 4 goals (1 goal in match 1 and one each in three consecutive matches). Thus, Harita will have scored 5 goals.

Because each of them scored a different number of goals. (Remaining goals = 12 - 4 - 5 = 3, i.e., Amla and Sarita will have scored 1 and 2 goals in any order).

From the above conclusion, Harita will be the highest goal scorer. Now she scored in exactly three matches (according to point 3) including match 4 and match 8. It is also given that only one goal was scored in every even-numbered match (point 1).

So, Harita scored 1 goal each in match 4 and match 8.

Thus, none of Amla, Bimla, and Sarita scored any goal in matches 4 and 8.

Match	Amla	Bimla	Harita	Sarita
1		1		
2				
3				
4	-	-	1	-
5				
6				
7				
8	-	-	1	-

Now, Bimla scored 1 goal each in three consecutive matches. These three matches will definitely be matches 5, 6, and 7 because there is no other possibility.

So, Bimla did not score any goal in matches 2 and 3.

Also, none of Amla, Harita and Sarita will score in match 6 (using point 1).

Match	Amla	Bimla	Harita	Sarita
1		1		
2		-		
3		-		
4	-	-	1	-
5		1		
6	-	1	-	-
7		1		
8	-	-	1	-

Using point 3:

Harita will have scored 3 goals in exactly 1 more match. Now this match cannot be the match numbered 3 or 7 or 5 (using points 5 and 6).

So, Harita will have scored 3 goals in match 1 (It cannot be match 2 because only 1 goal was scored in every even-numbered match)

Match	Amla	Bimla	Harita	Sarita
1		1	3	
2		-	-	
3		-	-	
4	-	-	1	-
5		1	-	
6	-	1	-	-
7		1	-	
8	-	-	1	-

Clearly, the highest number of goals are scored in match 1.

Till now, the places of 9 goals are filled. We are left with 3 more goals (out of which 1 goal is scored in match 2). So, we are left with 2 goals only.

Using point 5:

There is only one possibility, i.e., 1 goal each is scored in matches 3 and 7 and 2 goals are scored in match 5. (The number of goals scored in matches 3 and 7 cannot be 2 each because we are not left with that many number of goals).

So, the remaining 2 goals are distributed equally among match 3 and match 5.

Thus, we can conclude that neither Amla nor Sarita scored any goal in match 1.

Updating the table as per the above conclusions:

This is the final table. We will solve the questions accordingly.

Match	Amla	Bimla	Harita	Sarita	Total Goals
1	-	1	3	-	4
2		-	-		1
3		-	-		1
4	-	-	1	-	1
5		1	-		2
6	-	1	-	-	1
7	-	1	-	-	1
8	-	-	1	-	1

Statement 1: In every match, at least one player scored a goal.

The above statement is true as per the above final table, i.e., at least one goal is scored in every match.

Statement 2: No two players scored goals in the same number of matches.

From the final table:

Bimla scored goals in 4 matches.

Harita scored goals in 3 matches.

Amla and Sarita will score goals in 1 and 2 matches in any order.

So, the above statement is also true.

Thus, none of the given statements is false.

Hence, option A is the correct answer.

35.   Correct Answer : B

Sol 35.   Using points 2 and 4:

Bimla scored 4 goals (1 goal in match 1 and one each in three consecutive matches). Thus, Harita will have scored 5 goals.

Because each of them scored a different number of goals. (Remaining goals = 12 - 4 - 5 = 3, i.e., Amla and Sarita will have scored 1 and 2 goals in any order).

From the above conclusion, Harita will be the highest goal scorer. Now she scored in exactly three matches (according to point 3) including match 4 and match 8. It is also given that only one goal was scored in every even-numbered match (point 1).

So, Harita scored 1 goal each in match 4 and match 8.

Thus, none of Amla, Bimla, and Sarita scored any goal in matches 4 and 8.

Match	Amla	Bimla	Harita	Sarita
1		1		
2				
3				
4	-	-	1	-
5				
6				
7				
8	-	-	1	-

Now, Bimla scored 1 goal each in three consecutive matches. These three matches will definitely be matches 5, 6, and 7 because there is no other possibility.

So, Bimla did not score any goal in matches 2 and 3.

Also, none of Amla, Harita and Sarita will score in match 6 (using point 1).

Match	Amla	Bimla	Harita	Sarita
1		1		
2		-		
3		-		
4	-	-	1	-
5		1		
6	-	1	-	-
7		1		
8	-	-	1	-

Using point 3:

Harita will have scored 3 goals in exactly 1 more match. Now this match cannot be the match numbered 3 or 7 or 5 (using points 5 and 6).

So, Harita will have scored 3 goals in match 1 (It cannot be match 2 because only 1 goal was scored in every even-numbered match)

Match	Amla	Bimla	Harita	Sarita
1		1	3	
2		-	-	
3		-	-	
4	-	-	1	-
5		1	-	
6	-	1	-	-
7		1	-	
8	-	-	1	-

Clearly, the highest number of goals are scored in match 1.

Till now, the places of 9 goals are filled. We are left with 3 more goals (out of which 1 goal is scored in match 2). So, we are left with 2 goals only.

Using point 5:

There is only one possibility, i.e., 1 goal each is scored in matches 3 and 7 and 2 goals are scored in match 5. (The number of goals scored in matches 3 and 7 cannot be 2 each because we are not left with that many number of goals).

So, the remaining 2 goals are distributed equally among match 3 and match 5.

Thus, we can conclude that neither Amla nor Sarita scored any goal in match 1.

Updating the table as per the above conclusions:

This is the final table. We will solve the questions accordingly.

Match	Amla	Bimla	Harita	Sarita	Total Goals
1	-	1	3	-	4
2		-	-		1
3		-	-		1
4	-	-	1	-	1
5		1	-		2
6	-	1	-	-	1
7	-	1	-	-	1
8	-	-	1	-	1

Statement 1: Amla and Sarita never scored goals in the same match.

The above statement is true because we are left to determine the goals scored by Amla and Sarita in matches 2, 3, and 5. They scored 1 goal each in these 3 matches.

So, they can never score goals in the same match.

Statement 2: Harita and Sarita never scored goals in the same match.

From the above table, Harita did not score any goal in matches 2, 3, and 5. We also know that Sarita can score goals only in the above three matches.

So, Harita and Sarita never scored goals in the same match is also true.

Thus, both the above statements are true.

Hence, option B is the correct answer.

36.   Correct Answer : B

Sol 36.   Using points 2 and 4:

Bimla scored 4 goals (1 goal in match 1 and one each in three consecutive matches). Thus, Harita will have scored 5 goals.

Because each of them scored a different number of goals. (Remaining goals = 12 - 4 - 5 = 3, i.e., Amla and Sarita will have scored 1 and 2 goals in any order).

From the above conclusion, Harita will be the highest goal scorer. Now she scored in exactly three matches (according to point 3) including match 4 and match 8. It is also given that only one goal was scored in every even-numbered match (point 1).

So, Harita scored 1 goal each in match 4 and match 8.

Thus, none of Amla, Bimla, and Sarita scored any goal in matches 4 and 8.

Match	Amla	Bimla	Harita	Sarita
1		1		
2				
3				
4	-	-	1	-
5				
6				
7				
8	-	-	1	-

Now, Bimla scored 1 goal each in three consecutive matches. These three matches will definitely be matches 5, 6, and 7 because there is no other possibility.

So, Bimla did not score any goal in matches 2 and 3.

Also, none of Amla, Harita and Sarita will score in match 6 (using point 1).

Match	Amla	Bimla	Harita	Sarita
1		1		
2		-		
3		-		
4	-	-	1	-
5		1		
6	-	1	-	-
7		1		
8	-	-	1	-

Using point 3:

Harita will have scored 3 goals in exactly 1 more match. Now this match cannot be the match numbered 3 or 7 or 5 (using points 5 and 6).

So, Harita will have scored 3 goals in match 1 (It cannot be match 2 because only 1 goal was scored in every even-numbered match)

Match	Amla	Bimla	Harita	Sarita
1		1	3	
2		-	-	
3		-	-	
4	-	-	1	-
5		1	-	
6	-	1	-	-
7		1	-	
8	-	-	1	-

Clearly, the highest number of goals are scored in match 1.

Till now, the places of 9 goals are filled. We are left with 3 more goals (out of which 1 goal is scored in match 2). So, we are left with 2 goals only.

Using point 5:

There is only one possibility, i.e., 1 goal each is scored in matches 3 and 7 and 2 goals are scored in match 5. (The number of goals scored in matches 3 and 7 cannot be 2 each because we are not left with that many number of goals).

So, the remaining 2 goals are distributed equally among match 3 and match 5.

Thus, we can conclude that neither Amla nor Sarita scored any goal in match 1.

Updating the table as per the above conclusions:

This is the final table. We will solve the questions accordingly.

Match	Amla	Bimla	Harita	Sarita	Total Goals
1	-	1	3	-	4
2		-	-		1
3		-	-		1
4	-	-	1	-	1
5		1	-		2
6	-	1	-	-	1
7	-	1	-	-	1
8	-	-	1	-	1

From the above table, 4, 1, 2 and 1 goals were scored in matches 1, 3, 5, and 7, respectively.

Hence, option B is the correct answer.

37.   Correct Answer : D

Sol 37.   Using points 2 and 4:

Bimla scored 4 goals (1 goal in match 1 and one each in three consecutive matches). Thus, Harita will have scored 5 goals.

Because each of them scored a different number of goals. (Remaining goals = 12 - 4 - 5 = 3, i.e., Amla and Sarita will have scored 1 and 2 goals in any order).

From the above conclusion, Harita will be the highest goal scorer. Now she scored in exactly three matches (according to point 3) including match 4 and match 8. It is also given that only one goal was scored in every even-numbered match (point 1).

So, Harita scored 1 goal each in match 4 and match 8.

Thus, none of Amla, Bimla, and Sarita scored any goal in matches 4 and 8.

Match	Amla	Bimla	Harita	Sarita
1		1		
2				
3				
4	-	-	1	-
5				
6				
7				
8	-	-	1	-

Now, Bimla scored 1 goal each in three consecutive matches. These three matches will definitely be matches 5, 6, and 7 because there is no other possibility.

So, Bimla did not score any goal in matches 2 and 3.

Also, none of Amla, Harita and Sarita will score in match 6 (using point 1).

Match	Amla	Bimla	Harita	Sarita
1		1		
2		-		
3		-		
4	-	-	1	-
5		1		
6	-	1	-	-
7		1		
8	-	-	1	-

Using point 3:

Harita will have scored 3 goals in exactly 1 more match. Now this match cannot be the match numbered 3 or 7 or 5 (using points 5 and 6).

So, Harita will have scored 3 goals in match 1 (It cannot be match 2 because only 1 goal was scored in every even-numbered match)

Match	Amla	Bimla	Harita	Sarita
1		1	3	
2		-	-	
3		-	-	
4	-	-	1	-
5		1	-	
6	-	1	-	-
7		1	-	
8	-	-	1	-

Clearly, the highest number of goals are scored in match 1.

Till now, the places of 9 goals are filled. We are left with 3 more goals (out of which 1 goal is scored in match 2). So, we are left with 2 goals only.

Using point 5:

There is only one possibility, i.e., 1 goal each is scored in matches 3 and 7 and 2 goals are scored in match 5. (The number of goals scored in matches 3 and 7 cannot be 2 each because we are not left with that many number of goals).

So, the remaining 2 goals are distributed equally among match 3 and match 5.

Thus, we can conclude that neither Amla nor Sarita scored any goal in match 1.

Updating the table as per the above conclusions:

This is the final table. We will solve the questions accordingly.

Match	Amla	Bimla	Harita	Sarita	Total Goals
1	-	1	3	-	4
2		-	-		1
3		-	-		1
4	-	-	1	-	1
5		1	-		2
6	-	1	-	-	1
7	-	1	-	-	1
8	-	-	1	-	1

From the above final table, only 1 goal was scored in match 7.

Hence, option D is the correct answer.

38.   Correct Answer : 48

Sol 38.   For the east-west direction:

The following table shows the number of stations between different stations.

There is a service after every 10 minutes on east-west lines.

If the name of a station is represented in red colour, then it is a junction station. If the name of the station is represented by black colour, then it is a terminal station.

	Starting station and end station	Number of intermediate stations
Route: M to N	M and R	3 Time taken to reach = 11 min
	R and S	9 Time taken to reach = 29 min
	S and N	5 Time taken to reach = 17 min
Route: P to Q	P and T	3 Time taken to reach = 11 min
	T and V	9 Time taken to reach = 29 min
	V and Q	5 Time taken to reach = 17 min

For the north-south lines:

The following table shows the number of stations between different stations.

There is a service after every 15 minutes on north-south lines.

	Starting station and end station	Number of intermediate stations
Route: A to B	A and R	2 Time taken to reach = 11 min
	R and T	3 Time taken to reach = 15 min
	T and B	2 Time taken to reach = 11 min
Route: C to D	C and S	2 Time taken to reach = 11 min
	S and V	3 Time taken to reach = 15 min
	V and D	2 Time taken to reach = 11 min

Note that the above time shown, i.e., time taken to reach excludes the waiting time of the train at the junction stations viz. R, S, T, and V.

For the north-south route between stations A and B.

Total journey time between stations A and B = (11 + 2) + (15 + 2) + 11 = 41 min

The train that starts from station A at 6 a.m. will reach station B at 6:41 a.m. (It will rest for at least 15 minutes before starting a new journey). Thus, it can start its new journey after 6:56 a.m.

Thus, we will need at least 4 trains at station B, which will depart at 6 a.m., 6:15 a.m., 6:30 a.m. and 6:45 a.m. towards station A. The train that is scheduled to depart from station B at 7 a.m. can be the train that reached station B from station A at 6:41 a.m.

Similarly, we need at least 4 trains at station A, which will depart at 6 a.m., 6:15 a.m., 6:30 a.m. and 6:45 a.m.

The train that is scheduled to depart from station A at 7 a.m. can be the train that reached station A from station B at 6:41 a.m.

Thus, minimum number of trains required on route AB = 4 + 4 = 8

Similarly, the minimum number of trains required on route CD, MN, and PQ will be 8, 16, and 16, respectively.

Required answer = 8 + 8 + 16 + 16 = 48

Hence, 48 is the correct answer.

39.   Correct Answer : 8

Sol 39.   For the east-west direction:

The following table shows the number of stations between different stations.

There is a service after every 10 minutes on east-west lines.

If the name of a station is represented in red colour, then it is a junction station. If the name of the station is represented by black colour, then it is a terminal station.

	Starting station and end station	Number of intermediate stations
Route: M to N	M and R	3 Time taken to reach = 11 min
	R and S	9 Time taken to reach = 29 min
	S and N	5 Time taken to reach = 17 min
Route: P to Q	P and T	3 Time taken to reach = 11 min
	T and V	9 Time taken to reach = 29 min
	V and Q	5 Time taken to reach = 17 min

For the north-south lines:

The following table shows the number of stations between different stations.

There is a service after every 15 minutes on north-south lines.

	Starting station and end station	Number of intermediate stations
Route: A to B	A and R	2 Time taken to reach = 11 min
	R and T	3 Time taken to reach = 15 min
	T and B	2 Time taken to reach = 11 min
Route: C to D	C and S	2 Time taken to reach = 11 min
	S and V	3 Time taken to reach = 15 min
	V and D	2 Time taken to reach = 11 min

Note that the above time shown, i.e., time taken to reach excludes the waiting time of the train at the junction stations viz. R, S, T, and V.

Total journey time between stations A and B = (11 + 2) + (15 + 2) + 11 = 41 min

The train that starts from station A at 6 a.m. will reach station B at 6:41 a.m. (It will rest for at least 15 minutes before starting a new journey). Thus, it can start its new journey after 6:56 a.m.

Thus, we will need at least 4 trains at station B, which will depart at 6 a.m., 6:15 a.m., 6:30 a.m., and 6:45 a.m. towards station A. The train that is scheduled to depart from station B at 7 a.m. can be the train that reached station B from station A at 6:41 a.m.

Similarly, we need at least 4 trains at station A, which will depart at 6 a.m., 6:15 a.m., 6:30 a.m. and 6:45 a.m.

The train that is scheduled to depart from station A at 7 a.m. can be the train that reached station A from station B at 6:41 a..m.

Thus, minimum number of trains required = 4 + 4 = 8

Hence, 8 is the correct answer.

40.   Correct Answer : B

Sol 40.   For the east-west direction:

The following table shows the number of stations between different stations.

There is a service after every 10 minutes on east-west lines.

If the name of a station is represented in red colour, then it is a junction station. If the name of the station is represented by black colour, then it is a terminal station.

	Starting station and end station	Number of intermediate stations
Route: M to N	M and R	3 Time taken to reach = 11 min
	R and S	9 Time taken to reach = 29 min
	S and N	5 Time taken to reach = 17 min
Route: P to Q	P and T	3 Time taken to reach = 11 min
	T and V	9 Time taken to reach = 29 min
	V and Q	5 Time taken to reach = 17 min

For the north-south lines:

The following table shows the number of stations between different stations.

There is a service after every 15 minutes on north-south lines.

	Starting station and end station	Number of intermediate stations
Route: A to B	A and R	2 Time taken to reach = 11 min
	R and T	3 Time taken to reach = 15 min
	T and B	2 Time taken to reach = 11 min
Route: C to D	C and S	2 Time taken to reach = 11 min
	S and V	3 Time taken to reach = 15 min
	V and D	2 Time taken to reach = 11 min

Note that the above time shown, i.e., time taken to reach excludes the waiting time of the train at the junction stations viz. R, S, T, and V.

Time taken to reach station B from station S via station R = (29 + 2) + (15 + 2) + 11 = 59 min

Option A:

If Haripriya reaches station S at 11:35 p.m., then the first train towards station R will arrive (on the east-west lines) at 11:37 p.m., and it will depart at 11:39 p.m. Haripriya will reach station R at 12:10 a.m.

From station R, she will board the next available train towards B (on the north-south lines) at R at 12:11 a.m., which will depart at 12:13 a.m.

So, she will reach station B at 12:41 a.m.

Option B:

If Haripriya reaches station S at 11:39 p.m., then the first train towards station R would have arrived at 11:37 p.m., which will depart from station S at 11:39 p.m. Haripriya will reach station R at 12:10 a.m.

From station R, she will board the next available train towards B (on the north-south lines) at 12:11 a.m., which will depart at 12:13 a.m.

So, she will reach station B at 12:41 a.m.

Option C:

If Haripriya reaches station S at 11:43 p.m, then the first train towards station R will arrive (on the east-west lines) at 11:47 p.m., and it will depart at 11:49 p.m.

She will reach station R at 12:20 a.m.

Now there will be no train towards station B till 6:11 a.m. (at station R) because the trains run from terminal station from 6 a.m. to midnight.

So, the train that left terminal station A at midnight would have crossed station R at 12:13 a.m.

Thus, Haripriya should reach station S latest by 11:39 p.m.

Hence, option B is the correct answer.

41. Correct Answer : C

Sol 41. For the east-west direction:

The following table shows the number of stations between different stations.

There is a service after every 10 minutes on east-west lines.

If the name of a station is represented in red colour, then it is a junction station. If the name of the station is represented by black colour, then it is a terminal station.

	Starting station and end station	Number of intermediate stations
Route: M to N	M and R	3 Time taken to reach = 11 min
	R and S	9 Time taken to reach = 29 min
	S and N	5 Time taken to reach = 17 min
Route: P to Q	P and T	3 Time taken to reach = 11 min
	T and V	9 Time taken to reach = 29 min
	V and Q	5 Time taken to reach = 17 min

For the north-south lines:

The following table shows the number of stations between different stations.

There is a service after every 15 minutes on north-south lines.

	Starting station and end station	Number of intermediate stations
Route: A to B	A and R	2 Time taken to reach = 11 min
	R and T	3 Time taken to reach = 15 min
	T and B	2 Time taken to reach = 11 min
Route: C to D	C and S	2 Time taken to reach = 11 min
	S and V	3 Time taken to reach = 15 min
	V and D	2 Time taken to reach = 11 min

Note that the above time shown, i.e., time taken to reach excludes the waiting time of the train at the junction stations viz. R, S, T, and V.

After 10:25 a.m., the first train that will arrive at station N (on the north-south lines) will be at 10:26 a.m., and it will depart after two minutes, i.e., at 10:28 a.m. towards station R.

The first train that will arrive at station N after 10:25 a.m. (on the east-west lines) will be at 10:31 a.m., and it will depart at 10:33 a.m. towards station V.

Thus, to minimise the time, Priya will board the train on the north-south lines, which will depart from station N at 10:28 a.m. and will arrive at station R at 10:43 a.m.

Now, she needs to board the train on the east-west lines to reach station S.

The first train that will arrive at station R after 10:43 a.m. (on the east-west lines) will be at 10:41 a.m., and it will depart at 10:43 a.m. So, Priya can board the train because she will be available at station R at 10:43 a.m.

Time taken to reach station S from station R = 29 minutes

Thus, Priya will reach station R at 10:43 a.m. + 29 minutes = 11:12 a.m.

Hence, option C is the correct answer.

42.   Correct Answer : D

Sol 42.   For the east-west direction:

The following table shows the number of stations between different stations.

There is a service after every 10 minutes on east-west lines.

If the name of a station is represented in red colour, then it is a junction station. If the name of the station is represented by black colour, then it is a terminal station.

	Starting station and end station	Number of intermediate stations
Route: M to N	M and R	3 Time taken to reach = 11 min
	R and S	9 Time taken to reach = 29 min
	S and N	5 Time taken to reach = 17 min
Route: P to Q	P and T	3 Time taken to reach = 11 min
	T and V	9 Time taken to reach = 29 min
	V and Q	5 Time taken to reach = 17 min

For the north-south lines:

The following table shows the number of stations between different stations.

There is a service after every 15 minutes on north-south lines.

	Starting station and end station	Number of intermediate stations
Route: A to B	A and R	2 Time taken to reach = 11 min
	R and T	3 Time taken to reach = 15 min
	T and B	2 Time taken to reach = 11 min
Route: C to D	C and S	2 Time taken to reach = 11 min
	S and V	3 Time taken to reach = 15 min
	V and D	2 Time taken to reach = 11 min

Note that the above time shown, i.e., time taken to reach excludes the waiting time of the train at the junction stations viz. R, S, T, and V.

It is given that the train runs every 10 minutes on the east-west lines. So, if the first train starts at 6 a.m., then the next train after 8:05 a.m. will arrive at 8:10 a.m. at station M.

Time taken to reach station N = (11 + 2) + (29 + 2) + 17 = 61 minutes

Thus, Hari will arrive at station N at 8:10 a.m. + 61 minutes = 9:11 a.m.

Hence, option D is the correct answer.

43. Correct Answer : 2143

Sol 43. Reading the jumbled sequence, it is clear that 1-4-3 go together.

2 fits better before sentence 1.

Hence, the correct order is 2-1-4-3.

44.   Correct Answer : B

Sol 44.   The passage is about petitioning and how it is better than elections.

Only option B mentions all the important points about petitioning mentioned in the paragraph. Hence, B is the correct answer.

45.   Correct Answer : 2431

Sol 45.   Reading all the statements of the jumbled sequence, it is clear that 2 is a good starting sentence as it introduces the topic of collagen.

4 explains why despite its healing properties, it has not had a broader application.

Hence, 2-4 is a pair.

3 takes the idea of carrying disease agents into other species mentioned in 4 further by giving the example of fish.

And 1 follows 3 by talking about the benefits of fish collagen.

Hence, 2-4-3-1 is the correct order.

46.   Correct Answer : 3214

Sol 46.   Statement 3 starts the sequence as it introduces the topic of the creative industry and the attention it is receiving.

2 expands on the same idea saying the value would be still more if we added other factors.

So 3-2 is a pair.

1-4 is a pair as 1 talks of the importance of the creative element to a firm and 4 mentions how this increasing importance has led to the involvement of IP.

Hence, 3214 is the correct order.

47.   Correct Answer : A

Sol 47.   The passage is about how traditional narratives have portrayed Ethiopia was weak and in trouble in its relations with Europe, while mediaeval texts reveal a different picture with evidence of kings of Ethiopia sponsoring their own missions of diplomacy, faith, and commerce.

An accurate summary must mention this point and this is only mentioned in option A. Hence, A is the correct answer.

48.   Correct Answer : B

Sol 48.   The passage is about secret ceremonies. The sentence before blank 2 gives a reason why people are preferring secret weddings, the line after the blank starts with 'plus...', so we can deduce that the line

in between must give another reason for secret weddings. Option B does this by mentioning how avoiding anxiety and tension of the big day is a reason for a secret wedding.

Hence, B is the answer.

49.   Correct Answer : B

Sol 49.   The main points of the given passage are that (i) the distinction between animate and inanimate simply cannot be made in the world of quantum mechanics and that

(ii) physics and metaphysics show there is a pattern to the universe that goes beyond our capacity to grasp it with our brains.

This is summed up best in option B.

Hence, B is the correct answer.

50.   Correct Answer : D

Sol 50.   The given sentence sums up the passage, which mentions the effects of the internet on the knowledge of the people using it.

Hence, D is the correct answer.

51.   Correct Answer : B

Sol 51.   The given lines state that when one experiences emotions, one should not act on them. One should observe the emotions. This allows one to objectively assess and evaluate the emotions.

Option A is implied in this statement. According to the passage, Second movement behaviours occur after thinking and are under one's control. Therefore, we can see that the observation of emotions corresponds to the second movement.

Option C is implied in the given lines as the lines suggest that emotions should first be observed instead of being acted upon. Hence, it implies a passive reception of emotions and experiences.

Option D is implied in the given lines as they say that only after observing the emotions can one evaluate them. From this, we can deduce that emotional responses make it difficult to evaluate the value of experiences.

Option B is not implied. The author mentions that one should observe emotions so that one can achieve some kind of space or distance to make objective evaluation possible. He does not mean a literal 'out of the body' experience to achieve distance.

Hence, B is the correct answer.

52.   Correct Answer : A

Sol 52.   Look for an option that is in line with the author's arguments. Then if it is false, it would contradict the author's claims

Option A is exactly what the Epicureans believed. Read the following lines of the passage: The Epicureans, . . . held a similar view, believing that people should enjoy simple pleasures.

If option A is false, it would contradict these lines of the passage.

Hence, A is the correct answer.

53.   Correct Answer : D

Sol 53.   A is not true as the passage does not mention anything with regard to stoicism in India except that Buddhism has some similarity with stoic views.

B is not true as the passage states the opposite. The Stoics believed that to live the good life and be a good person, we need to free ourselves of nearly all desires such as too much desire for money, power, or sexual gratification.

C is not true as it misrepresents the facts given about Epicureans in the passage. Refer to the following lines: (the Epicureans) saw emotions, especially strong ones, as potentially dangerous. They viewed emotions as experiences that needed to be [reined] in and controlled.

So, the Epicureans wanted the strong emotions to be controlled, not all emotions.

D is correct. Refer to the following lines: '...the Stoic idea of developing virtue in oneself, of becoming a good person, which the Stoics believed we could do because we have a touch of the divine, laid the foundation for the three monotheistic religions: Judaism, Christianity, and Islam

Hence, D is the correct answer.

54.   Correct Answer : A

Sol 54.   Refer to the following lines of the first paragraph: '...consider what could have happened if an army general accused Marcus Aurelius of treason in front of other officers.'

From this, we can infer that Marcus Aurelius was one of the leaders or officers of the Roman army.

Hence, A is the answer.

55.   Correct Answer : D

Sol 55.   Read the sentence and simplify it. During mankind's earliest years on Earth, people believed that there were eerie creatures. These creatures were thought to be neither fully alive nor dead.

These points have been best explained in option D.

Hence, D is the answer.

56.   Correct Answer : C

Sol 56.   Reading the given sentence, it is clear that people or theories accorded the Undead certain attributes.

Option A mentions deified, which means treated like deities and worshipped, which is not correct.

Option B implies that by attributing abnormal characteristics to the Undead, the natural order of things was rejected, which is again incorrect. People only accorded the Undead characteristics, which were against the natural order of things.

Option C explains the statement best. The Undead were abnormal. To reaffirm their abnormality, human beings accorded them certain attributes.

Hence, C is the correct answer.

57. Correct Answer : A

Sol 57. The question asks which statement, if false, would go against the passage. Look for a statement that is in line with the author's arguments. Then, if it is false, it would work against the argument.

Option A is the answer. If the statement is false, then it means that the same theories of the Undead continued from the Middle ages to the age of Enlightenment, which is exactly what has been mentioned in the following lines of the concluding paragraphs of the passage: 'From the Middle ages and into the Age of Enlightenment, theories of the Undead continued to grow and develop.'

Hence, A is the answer.

58. Correct Answer : A

Sol 58. The passage is about how stories of the 'undead' emerged in primitive societies and persisted when men moved to cities and towns getting more definite shapes and attributes in the process. From the Middle Ages and into the Age of Enlightenment, theories of the Undead continued to grow and develop, with names like werewolf, vampire, and ghoul, etc. striking fear into the hearts of ordinary humans.

These points are best expressed in option A. Hence, A is the correct answer.

59. Correct Answer : D

Sol 59. The West assigns great value to the original, and hence A, B, and C follow. Cloning is opposed by the Christian religion, not the West in general. So what discourages the West from cloning is their religious affiliations, not the value they assign to the original.

Hence, D is the answer.

60. Correct Answer : C

Sol 60. Refer to the following: 'they are exact reproductions of the original, which for the Chinese, are of equal value to the original. It has absolutely no negative connotations.'

So, Picasso's copy of an original Van Gogh painting will be considered as having the same value as the original. Hence, C is the correct answer.

61. Correct Answer : A

Sol 61. Refer to the following lines of paragraph 4: Back in the 17th century [in the West], excavated artworks from antiquity were treated quite differently from today. They were not restored in a way

that was faithful to the original. Instead, there was massive intervention in these works, changing their appearance.

From this, we can clearly see that A goes against the argument. According to the argument, the 17th century artists would not have been faithful to the original, while the option states the opposite.

Hence, A is the correct answer.

62.   Correct Answer : D

Sol 62.   Refer to the lines of paragraphs 2 and 3 where the author mentions that the Ise Grand Shrine is built from scratch every 20 years, but Frieiburg Minster is preserved as far as possible where the old sandstone is replaced with new parts only when they cannot be preserved anymore. Hence, we cannot say that both structures are being restored continually.

Hence, D is the correct answer.

63.   Correct Answer : B

Sol 63.   **Refer to the lines of the third paragraph:** In accordance with this general line of thought, critical theory of technology regards technologies as an environment rather than as a collection of tools. We live today with and even within technologies that determine our way of life.

Also refer to the first line of the fourth paragraph: 'As an environment, technologies shape their inhabitants.'

From these two, we can infer that technologies shape human society and form its environmental contours.

Hence, B is the correct answer.

64.   Correct Answer : C

Sol 64.   **Refer to the lines of the fourth paragraph:**

As an environment, technologies shape their inhabitants. In this respect, they are comparable to laws and customs. Each of these institutions can be said to represent those who live under their sway through privileging certain dimensions of their human nature. Laws of property represent the interest in ownership and control. Customs such as parental authority represent the interest of childhood in safety and growth. Similarly, the automobile represents its users in so far as they are interested in mobility. Interests such as these constitute the version of human nature sanctioned by society.

A does not sum up the argument, while D compares tech environments and certain dimensions of human nature, which has not been mentioned.

Between B and C, B is eliminated as the author points to the similarity between technology, laws and customs from the point of view of representation, while the option makes their comparable aspects more general and swapping.

C is the correct answer as it sums up the argument that as institutions technology, laws, and customs are somewhat comparable.

Hence, C is the answer.

65.   Correct Answer : D

Sol 65.   **Option A can be inferred from the following lines of paragraph 5:** This notion of representation does not imply an eternal human nature.

The author mentions that institutions represent those who are under their sway. And parental authority represents the interest of childhood in safety and growth. But this representation is not permanent or eternal.

Option B can be inferred from the following lines of paragraph 3: A hermeneutics of technology must make explicit the meanings implicit in the devices we use and the rituals they script. Social histories of technologies such as the bicycle, artificial lighting, or firearms have made important contributions to this type of analysis. Critical theory of technology attempts to build a methodological approach on the lessons of these histories.

In other words, analyses of technologies must engage with their histories to show their implicit and explicit meanings

Option C can be inferred from the first few lines of the passage: advances in the formal claims of human rights take centre stage, while in the background, centralisation of ever more powerful public institutions and private organisations imposes an authoritarian social order.

Option D cannot be inferred. According to the passage: 'Each of these institutions can be said to represent those who live under their sway through privileging certain dimensions of their human nature.'

The passage states that institutions represent those who live under their sway by privileging certain dimensions of human nature. It does not state at a high cost to live in nature.

Hence, D is the correct answer.

66.   Correct Answer : D

Sol 66.   Option D misrepresents the author's argument and implies the opposite of what the argument states.

The author's argument is given in the following lines of paragraphs 1 and 2: 'advances in the formal claims of human rights take centre stage, while in the background, centralisation of ever more powerful public institutions and private organisations imposes an authoritarian social order.'

Marx attributed this trajectory to the capitalist rationalisation of production… This trajectory arose from the problems of command over a disempowered and deskilled labour force; but everywhere [that] masses are organised – whether it be Foucault's prisons or Habermas's public sphere – the same pattern prevails.

So, the author says that masses are organised in the sma pattern and gives the examples of Faucault's prisons and Habermas's public sphere.

While the option states that Foucalt's prison and Habermans' public sphere sets the rules of organisation of masses.

Hence, D goes against the author's arguments.