

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.

01. How many boys are there in the class?

02. 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
-

03. What fraction of the class are interested in attending a 2-day event?

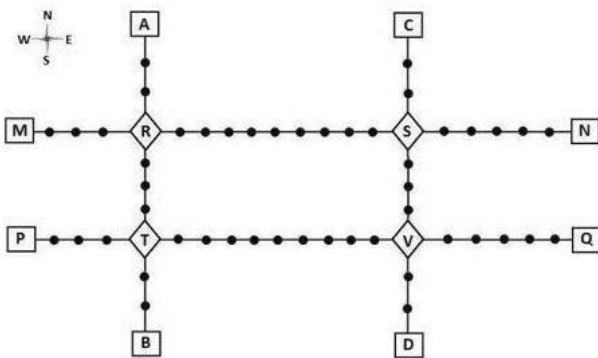
- A. $\frac{7}{10}$
 - B. $\frac{9}{13}$
 - C. $\frac{7}{13}$
 - D. $\frac{2}{3}$
-

04. 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

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

- A. 0
- B. 2
- C. Cannot be determined
- D. 1



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.)

06. If Hari is ready to board a train at 8:05 am from station M, then when 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

07. If Priya is ready to board a train at 10:25 am from station T, then when 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
-

08. 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 am
-

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

10. What is the minimum number of trains that are required to provide the service in this city?

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.

11. How many goals were scored in Match 7?

- A. 3
 - B. Cannot be determined
 - C. 2
 - D. 1
-

12. 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
-

13. Which of the following statement(s) 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
-

14. Which of the following statement(s) 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
-

15. 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
-

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 $\text{Rs.}1000 \times (2 \times 5 \times 7) = \text{Rs.}70,000$.

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.

16. How many tokens did Qahira receive?

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

- A. Qahira
- B. Tantra
- C. Pragnyaa
- D. Rasheeda

18. How many tokens did Chhaya award?

19. How many tokens did Smera receive?

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

- (a) Rs. 66,000
- (b) Rs. 165,000
- A. Neither (a) nor (b)
- B. Only (a)
- C. Both (a) and (b)
- D. Only (b)

A few salesmen are employed to sell a product called TRICCEK among households in various housing complexes. On each day, a salesman is assigned to visit one housing complex. Once a salesman enters a housing complex, he can meet any number of households in the time available. However, if a household makes a complaint against the salesman, then he must leave the housing complex immediately and cannot meet any other household on that day. A household may buy any number of TRICCEK items or may not buy any item. The salesman needs to record the total number of TRICCEK items sold as well as the number of households met in each day. The success rate of a salesman for a day is defined as the ratio of the number of items sold to the number of households met on that day. Some details about the performances of three salesmen - Tohri, Hokli and Lahur, on two particular days are given below.

1. Over the two days, all three of them met the same total number of households, and each of them sold a total of 100 items.
2. On both days, Lahur met the same number of households and sold the same number of items.
3. Hokli could not sell any item on the second day because the first household he met on that day complained against him.
4. Tohri met 30 more households on the second day than on the first day.
5. Tohri's success rate was twice that of Lahur's on the first day, and it was 75% of Lahur's on the second day.

01. What was the total number of households met by Tohri, Hokli and Lahur on the first day?

02. How many TRICCEK items were sold by Tohri on the first day?

03. How many households did Lahur meet on the second day?

- A. 20 or less
 - B. between 21 and 29
 - C. between 30 and 35
 - D. more than 35
-

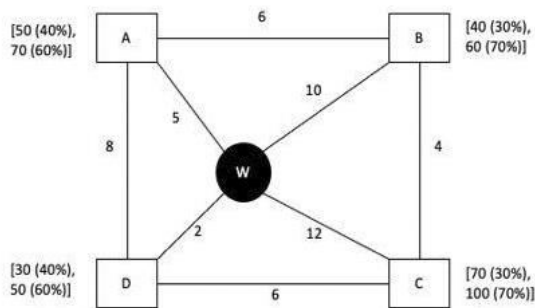
04. How many households did Tohri meet on the first day?

- A. more than 40
 - B. 10 or less
 - C. between 11 and 20
 - D. between 21 and 40
-

05. Which of the following statements is FALSE?

- A. Among the three, Tohri had the highest success rate on the first day.
 - B. Tohri had a higher success rate on the first day compared to the second day.
 - C. Among the three, Lahur had the lowest success rate on the first day.
 - D. Among the three, Tohri had the highest success rate on the second day.
-

Every day a widget supplier supplies widgets from the warehouse (W) to four locations – Ahmednagar (A), Bikrampore (B), Chitrachak (C), and Deccan Park (D). The daily demand for widgets in each location is uncertain and independent of each other. Demands and corresponding probability values (in parenthesis) are given against each location (A, B, C, and D) in the figure below. For example, there is a 40% chance that the demand in Ahmednagar will be 50 units and a 60% chance that the demand will be 70 units. The lines in the figure connecting the locations and warehouse represent two-way roads connecting those places with the distances (in km) shown beside the line. The distances in both the directions along a road are equal. For example, the road from Ahmednagar to Bikrampore and the road from Bikrampore to Ahmednagar are both 6 km long.



Every day the supplier gets the information about the demand values of the four locations and creates the travel route that starts from the warehouse and ends at a location after visiting all the locations exactly once. While making the route plan, the supplier goes to the locations in decreasing order of demand. If there is a tie for the choice of the next location, the supplier will go to the location closest to the current location. Also, while creating the route, the supplier can either follow the direct path (if available) from one location to another or can take the path via the warehouse. If both paths are available (direct and via warehouse), the supplier will choose the path with minimum distance.

06. If the last location visited is Ahmednagar, then what is the total distance covered in the route (in km)?
-
07. If the total number of widgets delivered in a day is 250 units, then what is the total distance covered in the route (in km)?
-
08. What is the chance that the total number of widgets delivered in a day is 260 units and the route ends at Bikrampore?
- A. 10.80%
 - B. 33.33%
 - C. 7.56%
 - D. 17.64%
-
09. If the first location visited from the warehouse is Ahmednagar, then what is the chance that the total distance covered in the route is 40 km?
- A. 3.24%
 - B. 30%
 - C. 5.4%
 - D. 18%
-

10. If Ahmednagar is not the first location to be visited in a route and the total route distance is 29 km, then which of the following is a possible number of widgets delivered on that day?

- A. 210
 - B. 200
 - C. 250
 - D. 220
-

A speciality supermarket sells 320 products. Each of these products was either a cosmetic product or a nutrition product. Each of these products was also either a foreign product or a domestic product. Each of these products had at least one of the two approvals – FDA or EU.

The following facts are also known:

1. There were equal numbers of domestic and foreign products.
2. Half of the domestic products were FDA approved cosmetic products.
3. None of the foreign products had both the approvals, while 60 domestic products had both the approvals.
4. There were 140 nutrition products, half of them were foreign products.
5. There were 200 FDA approved products. 70 of them were foreign products and 120 of them were cosmetic products.

11. How many foreign products were FDA approved cosmetic products?

12. How many cosmetic products did not have FDA approval?

- A. Cannot be determined
 - B. 50
 - C. 10
 - D. 60
-

13. Which among the following options best represents the number of domestic cosmetic products that had both the approvals?

- A. At least 10 and at most 60
 - B. At least 20 and at most 50
 - C. At least 10 and at most 80
 - D. At least 20 and at most 70
-

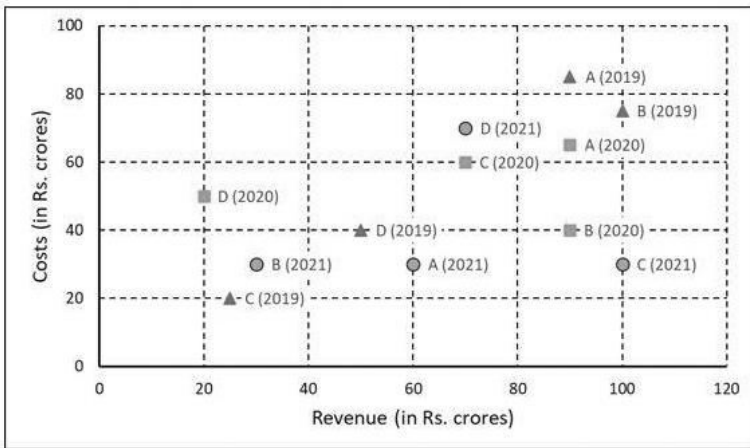
14. If 70 cosmetic products did not have EU approval, then how many nutrition products had both the approvals?

- A. 10
 - B. 30
 - C. 50
 - D. 20
-

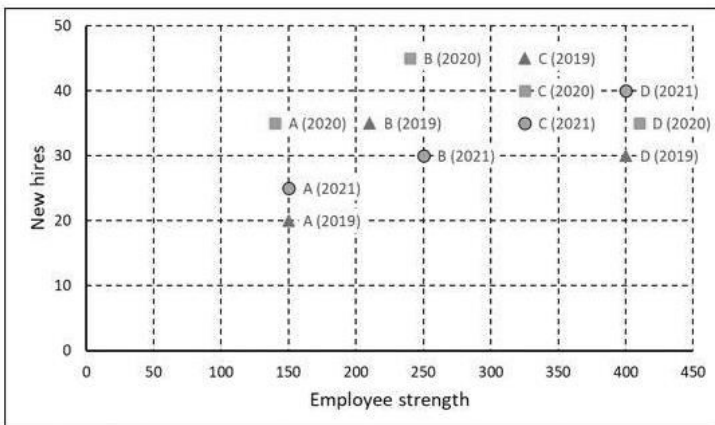
15. If 50 nutrition products did not have EU approval, then how many domestic cosmetic products did not have EU approval?

The two plots below show data for four companies code-named A, B, C, and D over three years - 2019, 2020, and 2021.

The first plot shows the revenues and costs incurred by the companies during these years. For example, in 2021, company C earned Rs.100 crores in revenue and spent Rs.30 crores. The profit of a company is defined as its revenue minus its costs.



The second plot shows the number of employees employed by the company (employee strength) at the start of each of these three years, as well as the number of new employees hired each year (new hires). For example, Company B had 250 employees at the start of 2021, and 30 new employees joined the company during the year.



16. Considering all three years, which company had the highest annual profit?

- A. Company C
- B. Company B
- C. Company A
- D. Company D

17. Which of the four companies experienced the highest annual loss in any of the years?

- A. Company D
 - B. Company C
 - C. Company A
 - D. Company B
-

18. The ratio of a company's annual profit to its annual costs is a measure of its performance. Which of the four companies had the lowest value of this ratio in 2019?

- A. Company A
 - B. Company B
 - C. Company C
 - D. Company D
-

19. The total number of employees lost in 2019 and 2020 was the least for:

- A. Company A
 - B. Company C
 - C. Company B
 - D. Company D
-

20. Profit per employee is the ratio of a company's profit to its employee strength. For this purpose, the employee strength in a year is the average of the employee strength at the beginning of that year and the beginning of the next year. In 2020, which of the four companies had the highest profit per employee?

- A. Company B
 - B. Company A
 - C. Company D
 - D. Company C
-

All the first-year students in the computer science (CS) department in a university take both the courses (i) AI and (ii) ML. Students from other departments (non-CS students) can also take one of these two courses, but not both. Students who fail in a course get an F grade; others pass and are awarded A or B or C grades depending on their performance. The following are some additional facts about the number of students who took these two courses this year and the grades they obtained.

1. The numbers of non-CS students who took AI and ML were in the ratio 2 : 5.
2. The number of non-CS students who took either AI or ML was equal to the number of CS students.
3. The numbers of non-CS students who failed in the two courses were the same and their total is equal to the number of CS students who got a C grade in ML.
4. In both the courses, 50% of the students who passed got a B grade. But, while the numbers of students who got A and C grades were the same for AI, they were in the ratio 3 : 2 for ML.
5. No CS student failed in AI, while no non-CS student got an A grade in AI.
6. The numbers of CS students who got A, B and C grades respectively in AI were in the ratio 3 : 5 : 2, while in ML the ratio was 4 : 5 : 2.
7. The ratio of the total number of non-CS students failing in one of the two courses to the number of CS students failing in one of the two courses was 3 : 1.
8. 30 students failed in ML.

01. How many students took AI?

- A. 60
 - B. 270
 - C. 90
 - D. 210
-

02. How many CS students failed in ML?

03. How many non-CS students got A grade in ML?

04. How many students got A grade in AI?

- A. 42
 - B. 99
 - C. 84
 - D. 63
-

05. How many non-CS students got B grade in ML?

- A. 165
 - B. 90
 - C. 25
 - D. 75
-

Pulak, Qasim, Ritesh, and Suresh participated in a tournament comprising of eight rounds. In each round, they formed two pairs, with each of them being in exactly one pair. The only restriction in the pairing was that the pairs would change in successive rounds. For example, if Pulak formed a pair with Qasim in the first round, then he would have to form a pair with Ritesh or Suresh in the second round. He would be free to pair with Qasim again in the third round. In each round, each pair decided whether to play the game in that round or not. If they decided not to play, then no money was exchanged between them. If they decided to play, they had to bet either ₹1 or ₹2 in that round. For example, if they chose to bet ₹2, then the player winning the game got ₹2 from the one losing the game.

At the beginning of the tournament, the players had ₹10 each. The following table shows partial information about the amounts that the players had at the end of each of the eight rounds. It shows every time a player had ₹10 at the end of a round, as well as every time, at the end of a round, a player had either the minimum or the maximum amount that he would have had across the eight rounds. For example, Suresh had ₹10 at the end of Rounds 1, 3, and 8 and not after any of the other rounds. The maximum amount that he had at the end of any round was ₹13 (at the end of Round 5), and the minimum amount he had at the end of any round was ₹8 (at the end of Round 2). At the end of all other rounds, he must have had either ₹9, ₹11, or ₹12.

It was also known that Pulak and Qasim had the same amount of money with them at the end of Round 4.

	Pulak	Qasim	Ritesh	Suresh
Round 1		₹8	₹10	₹10
Round 2	₹13	₹10		₹8
Round 3				₹10
Round 4				
Round 5	₹10	₹10		₹13
Round 6				
Round 7		₹12	₹4	
Round 8	₹13			₹10

06. What BEST can be said about the amount of money that Ritesh had with him at the end of Round 8?

- A. Exactly ₹6
- B. ₹4 or ₹5
- C. Exactly ₹5
- D. ₹5 or ₹6

07. What BEST can be said about the amount of money that Pulak had with him at the end of Round 6?

- A. Exactly ₹12
- B. ₹11 or ₹12
- C. Exactly ₹11
- D. ₹12 or ₹13

08. How much money (in ₹) did Ritesh have at the end of Round 4?

09. How many games were played with a bet of ₹2?

10. Which of the following pairings was made in Round 5?

- A. Pulak and Ritesh
- B. Pulak and Qasim
- C. Pulak and Suresh
- D. Qasim and Suresh

11. In 2000, what was the ratio of the number of dead males to dead females among those being tracked?

- A. 109 : 107
- B. 129 : 131
- C. 71 : 69
- D. 41 : 43

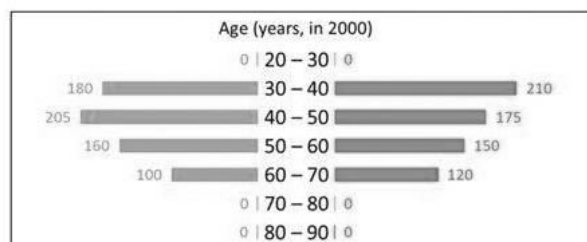
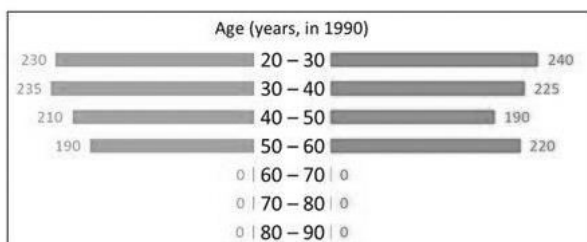
12. How many people who were being tracked and who were between 30 and 40 years of age in 1980 survived until 2010?

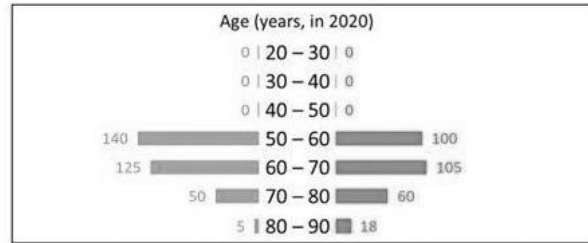
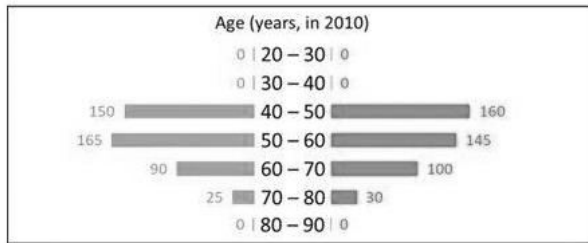
- A. 90
- B. 190
- C. 110
- D. 310

In the following, a year corresponds to 1st of January of that year.

A study to determine the mortality rate for a disease began in 1980. The study chose 1000 males and 1000 females and followed them for forty years or until they died, whichever came first. The 1000 males chosen in 1980 consisted of 250 each of ages 10 to less than 20, 20 to less than 30, 30 to less than 40, and 40 to less than 50. The 1000 females chosen in 1980 also consisted of 250 each of ages 10 to less than 20, 20 to less than 30, 30 to less than 40, and 40 to less than 50.

The four figures below depict the age profile of those among the 2000 individuals who were still alive in 1990, 2000, 2010, and 2020. The blue bars in each figure represent the number of males in each age group at that point in time, while the pink bars represent the number of females in each age group at that point in time. The numbers next to the bars give the exact numbers being represented by the bars. For example, we know that 230 males among those tracked and who were alive in 1990 were aged between 20 and 30.





13. How many individuals who were being tracked and who were less than 30 years of age in 1980 survived until 2020?
 - A. 470
 - B. 580
 - C. 240
 - D. 230

14. How many of the males who were being tracked and who were between 20 and 30 years of age in 1980 died in the period 2000 to 2010?

15. How many of the females who were being tracked and who were between 20 and 30 years of age in 1980 died between the ages of 50 and 60?

16. What BEST can be concluded about the total number of new cases in the city on Day 2?
 - A. Either 6 or 7
 - B. Exactly 8
 - C. Exactly 7
 - D. Either 7 or 8

There are only four neighbourhoods in a city - Levmosto, Tyhrmosto, Pesmisto and Kitmisto. During the onset of a pandemic, the number of new cases of a disease in each of these neighbourhoods was recorded over a period of five days. On each day, the number of new cases recorded in any of the neighbourhoods was either 0, 1, 2 or 3.

The following facts are also known:

1. There was at least one new case in every neighbourhood on Day 1.
2. On each of the five days, there were more new cases in Kitmisto than in Pesmisto.
3. The number of new cases in the city in a day kept increasing during the five-day period. The number of new cases on Day 3 was exactly one more than that on Day 2.
4. The maximum number of new cases in a day in Pesmisto was 2, and this happened only once during the five-day period.
5. Kitmisto is the only place to have 3 new cases on Day 2.
6. The total numbers of new cases in Levmosto, Tyhrmosto, Pesmisto and Kitmisto over the five-day period were 12, 12, 5 and 14 respectively.

17. What BEST can be concluded about the number of new cases in Levmisto on Day 3?

- A. Exactly 3
 - B. Either 2 or 3
 - C. Exactly 2
 - D. Either 0 or 1
-

18. On which day(s) did Pesmisto not have any new case?

- A. Only Day 3
 - B. Only Day 2
 - C. Both Day 2 and Day 4
 - D. Both Day 2 and Day 3
-

19. Which of the two statements below is/are necessarily false?

Statement A: There were 2 new cases in Tyhirmisto on Day 3.
Statement B: There were no new cases in Pesmisto on Day 2.

- A. Statement B only
 - B. Both Statement A and Statement B
 - C. Statement A only
 - D. Neither Statement A nor Statement B
-

20. On how many days did Levmisto and Tyhirmisto have the same number of new cases?

- A. 4
 - B. 5
 - C. 3
 - D. 2
-

DILR Slot 1 Answer Key

Question No.	Answer
1	Answer is 50
2	Option D
3	Option C
4	Option A
5	Option A
6	Option D
7	Option C
8	Option B
9	Answer is 8
10	Answer is 48
11	Option D
12	Option B
13	Option B
14	Option A
15	Option A
16	Answer is 2
17	Option C
18	Answer is 3
19	Answer is 3
20	Option C

DILR Slot 2 Answer Key

Question No.	Answer
1	Answer is 84
2	Answer is 40
3	Option B
4	Option B
5	Option D
6	Answer is 35
7	Answer is 38
8	Option C
9	Option D
10	Option A
11	Answer is 40
12	Option D
13	Option A
14	Option A
15	Answer is 50
16	Option A
17	Option A
18	Option A
19	Option C
20	Option A

DILR Slot 3 Answer Key

Question No.	Answer
1	Option B
2	Answer is 12
3	Answer is 27
4	Option D
5	Option D
6	Option A
7	Option A
8	Answer is 6
9	Answer is 6
10	Option C
11	Option C
12	Option B
13	Option A
14	Answer is 40
15	Answer is 30
16	Option B
17	Option A
18	Option A
19	Option B
20	Option B

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