

Analytical Ability

ANALYTICAL REASONING

Analytical reasoning questions are designed to measure your ability to figure out and understand a structure of relationships and to draw logical conclusions about the structure. You are asked to make deductions or conclusions from a set of statements, conditions, or rules that describe the relationships among given entities such as persons, places, things, or events. They simulate the kinds of detailed analyses of relationships that a student must perform in solving research oriented problems they will have to interact during higher studies.

For example, seven airplane passengers sitting in Business class follow certain rules as to who can sit where. You must answer questions about the deductions from the given information, like, Who is sitting with passenger A?

No formal training in logic is required to answer these questions correctly.

Analytical reasoning questions are intended to be answered using knowledge, skills, and reasoning ability generally expected of college students and graduates.

GENERAL TYPES OF QUESTIONS

The passage used for each group of questions in the test, generally describes a common relationship such as the following:

TASKS AND PERFORMANCE:

Two sales persons K and M, visit their territories T_1 and T_2 in four days, Monday through Thursday.

GROUPING:

A commander forms a troop from four soldiers – A, B, C, and D. Each soldier has a particular strength.

SEQUENCING:

Bus-2 arrives after Bus-3 but before Bus-1.

TOPOLOGIES:

A city has four towns and each town is connected to at least one other town by roads, some of which are connected by intercity railway track.

Careful reading and analysis are necessary to determine the exact nature of the relationships involved.

FIXED RELATIONS:

Some relationships among the entities are fixed and cannot be changed unless stated in any other

question about the same set of conditions.

e.g., R and I always sit next to each other. Or R stays at Jahania and I at Multan.

Such relations are easily manageable by fixing the entities in the diagram of the question.

VARIABLE RELATIONS:

Some relations are variable. The test taker is actually asked to adjust the variables correctly for the right answer.

e.g., Zahid must be assigned to either window 1 or window 3.

The questions base on the adjustment of such type of relations.

IMPLIED RELATIONS:

Some relationships that are not stated in the conditions are implied by and can be deduced from the stated set.

e.g., If one condition about boxes on a shelf specifies that Box 1 is to the left of Box 2, and another specifies that Box 4 is to the left of Box 1, then it can be deduced that Box 4 is to the left of Box 2.

STRATEGIES

WORK IN SEQUENCE:

Some people prefer to answer first those questions about a passage that seem less difficult and then those that seem more difficult. It is not good to start another passage before finishing one begun earlier, because it is time consuming to return to a passage and to reestablish familiarity with its relationships.

AVOID WRONG JUDGMENT:

Do not assume that because the conditions for a set of questions look long or complicated, the questions based on those conditions will necessarily be difficult. Avoid the wrong judgment, work in sequence, and try all questions.

AVOID YOUR OWN ASSUMPTIONS:

Do not introduce unwarranted assumptions in the given conditions. Always base on the given conditions and facts only. For example, don't assume that if A is taller than B then A has more weight than that of B.

EXPLOIT GIVEN INFORMATION:

Each passage provides full information required to solve the question. The conditions are designed to be as clear as possible; do not interpret them as if they were intended to trick you. For example, if a question asks how many women could be eligible to get admission, consider only those women named in the passage unless directed otherwise. When you feel doubt, read the conditions in their most obvious sense. Remember, however, that the language in the conditions is intended to be read for precise meaning.

KEY WORDS:

It is essential to pay special attention to words that describe or limit relationships, such as — only, “similarly,” “as,” “exactly,” “never,” “always,” “must be,” “can be,” “cannot be,” and the like.

TREAT EVERY QUESTION INDEPENDENTLY:

Test taker must treat each question separately from the other questions in its set; no information, except what is given in the original conditions, should be carried over from one question to another.

DRAW DIAGRAMS OF THE CONDITIONS:

It is very useful to draw a diagram to assist you in finding the solution. On the other hand, many people find it useful to underline key points in the passage and in each question. In addition, some people like to use symbols, for example; the condition that A and B sit together can be represented by $A \triangle B$, and for “A and B are not to sit together” the symbol might be $A \ntriangle B$. Visualization of conditions by symbol is a quicker reference in the application of the conditions than to read conditions repeatedly. You can devise your own symbols for most often used conditions. Always use a fixed symbol for a particular condition.

ATTACKING WITH DIAGRAMS:

In preparing for the test, you may use different types of diagrams for different types of questions. There is by no means a universal agreement on which kind of diagram is best for which problem or in which cases a diagram is most useful. Do not be concerned if a particular problem in the test seems to be best approached without the use of a diagram.

SCHEDULING QUESTION:

In scheduling problems, a tabular diagram may be helpful.

TOPOLOGICAL QUESTION:

For a topological relationship problem, an arrow diagram or a simple map can be a useful device.

PASSAGE FOR QUESTION 1

Country Kabana has seven major cities — A, B, C, D, E, F, and G. Three flights labeled 1, 2, and 3 are available to connect the cities following the rules:

Flight 1 has its ends at A and C, and passes through B only.

Flight 2 has its ends at B and C, and passes through D only.

Flight 3 has its ends at E and G, and passes through F only.

Directly connected cities are those cities between which there is no other city to land any flight.

QUESTION

Which one of the following city is directly connected to the most other cities?

(A) B

(B) C

(C) D

(D) E

(E) F

Explanation for Question

This question can be solved with the aid of Topological diagram.

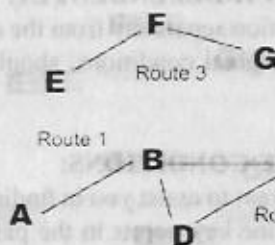


Diagram clearly shows that city B is directly connected with most other cities. The right choice is A.

SOLVED EXAMPLES**DIRECTIONS:**

The following questions are based on a passage or set of conditions. To answer the question, choose the answer you think is most appropriate among the given options. Answer of

Answer of each question has been given at the end of the exercise.

QUESTIONS 1- 3

Three men (Tahir, Pervaiz, and Javed) and three women (Elena, Ayesha, and Kiran) are spending a few months at Abbottabad. They are to stay in a row of nine cottages, each one living in his or her own cottage. There are no others staying in the same row of cottages.

1. Ayesha, Tahir, and Javed do not want to stay in any cottage, which is at the end of the row.
2. Elena and Ayesha are unwilling to stay besides any occupied cottage.
3. Kiran is next to Pervaiz and Javed.
4. Between Ayesha and Javed's cottage there is just one vacant house.
5. None of the girls occupies adjacent cottages.
6. The house occupied by Tahir is next to an end cottage.

1. Which of the above statements can be said to have been derived from two other statements?

- | | |
|---------------|---------------|
| A.Statement 1 | B.Statement 2 |
| C.Statement 3 | D.Statement 5 |
| E.Statement 6 | |

2. How many of them occupy cottages next to a vacant cottage?

- | | |
|------|------|
| A. 2 | B. 3 |
| C. 4 | D. 5 |
| E. 6 | |

3. Which among these statement(s) are true?

- a. Ayesha is between Elena and Javed.
- b. At the most four persons can have occupied cottages on either side of them.
- c. Tahir stays besides Pervaiz.

- | | |
|-------------------|--------------------|
| A. I only | B. II only |
| C. I and III only | D. II and III only |

E.I, II and III

QUESTIONS 4 - 6

An Internal Services Manager at a large corporation has been assigned the task of allotting offices to six of the staff members. The offices are titled A through F.

Mrs. Ruby needs to use the telephone quite often throughout the day. Mr. Mujahid and Mr. Zahid need adjacent offices as they need to consult each other often while working. Mrs. Fauzia is a senior employee and has to be allotted the office marked E, having the biggest window.

Mr. Abid requires silence in the offices next to his. Mr. Shahid, Mr. Mujahid, and Mr. Abid are all smokers. Mrs. Fauzia requires non-smoker neighbors.

Unless specifically stated all the employees maintain an atmosphere of silence during office hours.

4. The ideal candidate to occupy the office farthest from Mr. Zahid would be

- | | |
|----------------|----------------|
| A. Mrs. Fauzia | B. Mr. Mujahid |
| C. Mr. Shahid | D. Mr. Abid |
| E. Mrs. Ruby | |

5. The three employees who are smokers should be seated in the offices.

- | | | | |
|----|------------|----|------------|
| A. | A, B and D | B. | B, C and F |
| C. | A, B and E | D. | A, B and C |
| E. | A, B and F | | |

6. The ideal office for Mr. Mujahid would be.

- | | |
|------|------|
| A. B | B. F |
| C. A | D. C |
| E. D | |

QUESTIONS 7-11

Two or more tealeaves out of five varieties-- Livana, Mathia, Novajana, Oxia, and Piask are used in making all branded blends by a marketer following the rules given below.

A brand containing Livana, should also contain Novajana twice that of Livana.

A brand containing Mathia, must also have equal quantity of Oxia.

A single brand never contains Novajana as well as Oxia.

Oxia and Piask should not be used together.

A blend containing Piask should contain it in such a proportion that the total amount of Piask present should be greater than the total amount of the other tealeaves

7. Among the following which is an acceptable brand in accordance with the rules?

- A. One part Livana, one part Piask
- B. Two parts Mathia, two parts Livana
- C. Three parts Novajana, three parts Livana
- D. Four parts Oxia, four parts Mathia
- E. Five parts Piask, five parts Mathia

8. Adding more amount of Novajana will make which of the following brands conformable with the conditions?

- A. One part Livana, one part Novajana, five parts Piask
- B. Two parts Mathia, two parts Novajana, two parts Piask
- C. One part Mathia, one part Novajana, one part Piask
- D. Two parts Mathia, one part Novajana, four parts Piask
- E. Two parts Novajana, one part Oxia, three parts Piask

9. Among the following, the addition of which combination would make a brand containing two parts Novajana and one part Piask conformable with the conditions?

- A. One part Livana
- B. One part Mathia
- C. Two parts Novajana
- D. One part Oxia
- E. Two parts Piask

10. Among the following, which combination cannot be used together in an agreeable brand containing two or more types of tealeaves?

- A. Livana and Mathia
- B. Livana and Novajana
- C. Livana and Piask
- D. Mathia and Oxia
- E. Piask and Novajana

11. Among the below mentioned brands, which can be made agreeable by eliminating some or all of one type of tealeaves?

- A. One part Livana, one part Mathia, one part Novajana, four parts Piask
- B. One part Livana, two parts Novajana, one part Oxia, four parts Piask
- C. One part Livana, one part Mathia, one part Oxia, one part Piask
- D. Two parts Livana, two parts Novajana, one part Oxia, two parts Piask
- E. Two parts Mathia, one part Novajana, two parts Oxia, three parts Piask

QUESTIONS 12 - 17

Nine individuals - Z, Y, X, W, V, U, T, S and R - are the only candidates, who can serve on three committees labeled A, B and C.

Each candidate should serve on exactly one of the committees.

Committee A should consist of exactly one member more than that of committee B.

It is possible that there are no members of committee C. Among Z, Y and X none can serve on committee A. Among W, V and U none can serve on committee B. Among T, S and R none can serve on committee C.

12. In case T and Z are the individuals serving on committee B, how many of the nine individuals should serve on committee C?

- A. 3
- B. 4
- C. 5
- D. 6
- E. 7

13. Of the nine individuals, the largest number that can serve together on committee C is

- A. 9
- B. 8
- C. 7
- D. 6
- E. 5

14. In case R is the only individual serving on committee B, which among the following should serve on committee A?

- A. W and S
- B. V and U
- C. V and T
- D. U and S
- E. T and S

15. In case, any of the nine individuals serves on committee C, which among the following could not be the candidate to serve on committee A?

- A. R
- B. Y
- C. W
- D. T
- E. S

16. In case T, S and X are the only individuals serving on committee B, the total membership of committee C should be:

- A. Z and Y
- B. Z and W
- C. Y and V
- D. Y and U
- E. X and V

17. Among the following combinations which could constitute the membership of committee C?

- A. Y and T B. X and U
C. Y, X and W D. W, V and U
E. Z, X, U and R

QUESTIONS 1- 23

Four captains and the first mates of three of them were called to attend the annual meeting at head quarters. The captains were Luqman, Manzoor, Nauman and Osaf; the first mates were Ayesha, Durya and Gia. Each person in turn delivered a report to the chairperson as follows: Each of the first mates delivered their report exactly after her captain. The first captain to speak was Manzoor, and captain Nauman spoke after him.
(Represent the person with first letter of his name)

18. Which of the following order of delivering report is not conformable with the conditions?

- A. M, A, N, G, O, L, D B. M, D, N, G, L, O, A
C. M, N, A, L, D, O, G D. M, N, A, O, D, L, G
E. M, N, G, D, O, L, A

19. In case A is the third of the first mates to speak, and L is the captain whose first mate is not present, which among the following statements must be true?

- A. A spoke sometime before L.
B. D spoke sometime before O.
C. L spoke sometime before O.
D. O spoke sometime before L.
E. O spoke sometime before N.

20. Among the following statements, which statement must be true?

- A. In case the second speaker was a captain, the seventh speaker was a first mate.
B. In case the second speaker was a first mate, the seventh speaker was a captain.
C. In case the third speaker was a first mate, the seventh speaker was a captain.
D. In case the third speaker was a captain, the seventh speaker was a first mate.
E. In case the seventh speaker was a first mate, the first and third speakers were captains.

21. In case A spoke immediately after L and immediately before O, and O was not the last speaker, L spoke

- A. second B. third
C. fourth D. fifth

E. Sixth

22. In case L speaks after A, and A is the third of the first mates to speak, then among the following statements which would be untrue?

- A. O spoke immediately after G
- B. The order of the first four speakers was M, G, N, D
- C. O's first mate was present
- D. A was the fourth speaker after M
- E. The captains spoke in the order M, N, O, L

23. Among the following statements, which would make M, D, N, G, L, O, A the only possible sequence of speakers?

- A. D is M's first mate; G is N's first mate; A is O's first mate
- B. D is M's first mate; G is N's first mate; A was the second to speak after L
- C. The order of the first four speakers was M, D, N, G
- D. The order of the last three speakers was L, O, A
- E. The order in which the captains spoke was M, N, L, O

ANSWERS

1	D	2	C	3	C	4	D	5	D
6	D	7	D	8	A	9	E	10	A
11	B	12	B	13	D	14	E	15	B
16	A	17	B	18	E	19	B	20	A
21	C	22	D	23	B				

EXPLANATIONS:

- Statement 5 is the one that is derived from statement 2 and statement 3, because in these two statements girls are not surrounded by boys.
- We can see that Eleena, Aleena, Ayesha, Javed and Tahir live next to vacant rooms.
- We can see that Ayesha is in between Eleena & Javed, Moreover Tahir and pervaiz live side by side. So statement I and III are true.
- Abid will be the parthest person from Mr. Zahid. Abid (A), Shahid (B), Mujahid (C), Zahid (D), Fauzia (E), Ruby (F). Abid will live in A, because he could get silence at one side of his room.
- Abid, Shahid & Mujahid are smokers and live in A, B & C because any one of them can't live at D & F because Fauzia in office E wants non-smoker at her adjacent offices.

6. According to the diagram, Mr. Mujahid would live in office C, because Zahid and Mujahid live next to each other. Moreover Mujahid is smoker and can't live next to Mrs Fauzia.
7. Four parts Oxia & four parts Mathia would be an ideal mixture because it doesn't violate any condition & satisfy all of them. The one which is concerned with this mixture is that there must be equal proportion of Oxia & Mathia.
8. If we add 1 more part of Novajana, mixture would become
 2 parts novajana
 1 part divana
 5 parts piast.
9. If we add two more parts of piast, it would dominate the amount of Novajana in the mixture. All conditions satisfied.
10. If Livana is included, two parts of Novajana must be included. Mathia comes with Oxia and now this becomes a combination of 4 i.e. Livana, Novajana, Mathia & Oxia which Oxia & Novajana can't come together. Hence A is the one that is not possible.
11. If we remove the only part of Oxia, the combination becomes 1 Livana, 2 Navajana & 4 piast. This combination satisfies all the conditions.
12. If two persons serve in committee B, then three would work in A. This total 6 in A & B. The rest 4 of the persons would serve in C.
13. If one works in committee B, now two persons have to work in A, the rest 6 will serve in C. Moreover, the persons serving in committee A & B are RST because they can't serve in committee C.
14. S and T can't serve in committee C, therefore, these two will have to serve in committee A. Moreover, one person in B means two persons in A.
15. A can't have X, Y and Z.
16. If S, T & X are living in B, then four persons must be in A. Four persons serving in A would be R, U, B and W. Y & Z can't serve in committee A as per conditions. Therefore only Y & Z are possible candidates to serve in C.

17.

A	B	C
2	1	6
3	2	4
4	3	2
5	4	0

From this, it becomes evident that even number of candidates would serve in C, and those would not include R, S & T. The only option that contains even number of

**BRAIN BUSTERS****PRACTICE EXERCISE****Directions:**

The following questions are based on a passage or set of conditions. To answer the question, choose the answer you think is most appropriate among the given options.

The answers and explanations of the questions have been given at the next page after the exercise.

Questions 24 – 27

New specie of bacteria A, causes the infectious disease A. The first symptoms appear after two days since the bacteria A enters the body of the victim. The carriers for the bacteria are some flies, mosquitoes, and bees.

A mosquito bit Javed on Monday, February 6. Farooq worked with Javed the next day, Tuesday, February 7. There were no other possibilities of exposure to disease A.

QUESTIONS:

24. In case Javed showed symptoms of disease A, which of the following statements would be true?

- I. Javed contracted the Disease A from Farooq.
- II. Javed first noticed symptoms of Disease A on February 8.
- III. The fly that Javed was bitten by was not a carrier of the bacteria A.

- A. I only
- B. II only
- C. III only
- D. I and II only
- E. I and III only

25. In case Farooq displayed symptoms of the disease A, which among the following would be true?

- I. Javed contracted the Disease A from Farooq.
- II. Javed first noticed symptoms of Disease A on February 8.
- III. The fly that Javed was bitten by was not a

carrier of the bacteria A.

- A. I only
- B. II only
- C. III only
- D. II and III only
- E. I, II and III

26. In case, Javed displayed symptoms of Disease A on February 7th, which would be true?

- I. Javed was also bitten by a fly on February 5.
- II. Javed was bitten by a mosquito, which carried the bacteria A.
- III. Farooq contracted Disease A from Javed.

- A. I only
- B. II only
- C. III only
- D. I and II only
- E. II and III only

27. In case, Farooq displayed the symptoms of Disease A, which of the following would be true?

- I. Farooq was bitten by a bee on February 6.
 II. Farooq ate food, which contained the bacteria A.
 III. Farooq also worked with Javed on February 6.

- A. I only B. II only
 C. III only D. I and II only
 E. I, II and III

28. In a particular code, the digits from 0 to 9 inclusive are each represented by a different letter of the alphabet, the letter always representing the same digit. If the following sum

$$\begin{array}{r} ZMPZ \\ + SKZ \\ \hline CRZQ \end{array}$$

holds true when it is expressed in digits, which of the following cannot be properly inferred:

- A. Z cannot be 0.
 B. Z must be less than 5.
 C. Q must be even.
 D. $M + S$ must be greater than 8.
 E. C must be greater than Z by 1.

Questions 29 - 34

In a factory control room, there are three ON-OFF switches on the central control panel, labeled A, B, and C. They are changed from default setting to a required setting based on the following rules:

In case only switch A is ON in the default setting, then turn switch B ON.

In case switches A and B are the only switches ON in the default setting, then turn switch C ON. In case all the three switches are ON, in default setting, then turn the switch C OFF. For any other default setting, turn ON all switches that are OFF and turn OFF all switches, if any, that are ON.

29. In case, in default setting the switches A and B are ON and the switch C is OFF, then what could be the second setting?

- A. A ON, B ON, C ON.
 B. A ON, B OFF, C ON.
 C. A ON, B OFF, C OFF.

- D. A OFF, B ON, C OFF.
 E. A OFF, B OFF, C ON.

30. In case only switch B is ON in the default setting, what must be the second setting?

- A. A ON, B ON, C ON.
 B. A ON, B ON, C OFF.
 C. A ON, B OFF, C ON.
 D. A OFF, B OFF, C ON.
 E. A OFF, B OFF, C OFF.

31. In case, all the three switches are ON in the second setting, which among the following could have been the default setting?

- A. A ON, B ON, C ON.
 B. A ON, B ON, C OFF.
 C. A ON, B OFF, C ON.
 D. A ON, B OFF, C OFF.
 E. A OFF, B ON, C OFF.

32. In case, switch A is OFF in the second setting. Which of the following could have been the default setting?

- A. A ON, B ON, C ON.
 B. A ON, B ON, C OFF.
 C. A ON, B OFF, C ON.
 D. A ON, B OFF, C OFF.
 E. A OFF, B ON, C OFF.

33. In case, only switch B is ON in the second setting. Which of the following could have been the default setting?

- A. A ON, B ON, C ON.
 B. A ON, B OFF, C ON.
 C. A OFF, B ON, C OFF.
 D. A OFF, B OFF, C ON.
 E. A OFF, B OFF, C OFF.

34. Which of the following default settings leads to a second setting, where only one switch is OFF?

- A. A ON, B ON, C OFF.
 B. A ON, B OFF, C ON.
 C. A OFF, B ON, C ON.
 D. A OFF, B ON, C OFF.
 E. A OFF, B OFF, C OFF.

Questions 35 - 41

Multan Institute of Higher Studies plans to show five educational films A, B, C, D, and

E to a group of students. The film shows are planned in an order, which conforms to the following conditions:

- A must be shown earlier than C.
- B must be shown earlier than D.
- E should be the fifth film shown.

35. In case, C is shown earlier than E, which among the following will hold true?

- A. A is the second film shown.
- B. B is the second film shown.
- C. C is the third film shown.
- D. D is the fourth film shown.
- E. E is the fourth film shown.

36. In case, D is to be shown earlier than A, then for which of the following these exactly one position from first through fifth in which it can be scheduled to be shown?

- A. A B. B
- C. C D. D
- E. E

37. Which among the following is an acceptable order for showing the educational films?

- A. A, C, B, D, E
- B. A, C, D, E, B
- C. B, D, C, A, E
- D. B, D, E, A, C
- E. E, B, C, A, D

38. Which among the following is the pair of films that CANNOT be shown right before E?

- A. A and B B. A and D
- C. B and C D. B and D
- E. C and D

39. In case D and E are shown as far apart from each other as possible, which among the following would be true?

- A. A is shown earlier than B
- B. B is shown earlier than C
- C. C is shown earlier than E
- D. D is shown earlier than A
- E. E is shown earlier than B

40. In case B, D and E are to be shown one after the other in the given order, the position from first to fifth in which A could possibly

be shown is

- A. second.
- B. first
- C. third
- D. fifth
- E. fourth

41. In case exactly one film is shown between A and C, and exactly one film is shown between B and D, which among the following will hold true?

- A. B is the film shown between A and C.
- B. A is the film shown between B and D.
- C. E is the film shown between A and C.
- D. D is the last film shown.
- E. E is the first film shown.

Questions 42 - 44

A bus has exactly six stops on its route. The bus first stops at stop one and then at stops two, three, four, five, and six respectively. After the bus leaves stop six, the bus turns and returns to stop one and repeats the cycle. The stops are at six buildings that are, in alphabetical order L, M, N, O, P, and Q.

P is the third stop. M is the sixth stop. The stop O is the stop immediately before Q. N is the stop immediately before L.

42. In case N is the fourth stop, which among the following must be the stop immediately before P?

- A. O B. Q
- C. N D. L
- E. M

43. In case L is the second stop, which among the following must be the stop immediately before M?

- A. N B. L
- C. P D. O
- E. Q

44. In case a passenger gets on the bus at O, rides past one of the stops, and gets off at P, which of the following must be true?

- A. O is stop one.
- B. Q is stop three.
- C. P is stop four.
- D. N is stop five.
- E. L is stop six.

Questions 45 - 48

Six scientists A, B, C, D, E, and F are to present a paper each at a one-day conference. Three of them will present their papers in the morning session before the lunch break whereas the other three will present in the afternoon session. The lectures have to be scheduled in such a way that they comply with the following restrictions:

B should present his paper immediately before C's presentation; their presentations cannot be separated by the lunch break. D must be either the first or the last scientist to present his paper.

45. In case C is to be the fifth scientist to present his paper, then B must be

- A. first B. second
C. third D. fourth
E. sixth

46. B could be placed at any of the following places in the order of presenters EXCEPT

- A. first B. second
C. third D. fourth
E. fifth

47. In case F is to present his paper immediately after D presents his paper, C could be scheduled for which of the following places in the order of presenters?

- A. first B. second
C. third D. fourth
E. fifth

48. In case F and E are the fifth and sixth presenters respectively then which of the following must be true?

- A. A is first in the order of presenters.
B. A is third in the order of presenters.
C. A is fourth in the order of presenters.
D. B is first in the order of presenters.
E. C is fourth in the order of presenters.

Questions 49

Three girls Joan, Rita, and Kim and two boys Tim and Steve are the only dancers in a dance program, which consists of six numbers in this order: One a duet; two a duet; three a solo; four a duet; five a solo; and six a duet.

None of the dancers is in two consecutive numbers or in more than two numbers. The first number in which Tim appears is the one that comes before the first number in which Kim appears.

The second number in which Tim appears is one that comes after the second number in which Kim appears.

49. Rita must perform only in duets if

- A. Kim is in number two
B. Kim is in number five
C. Tim is in number one
D. Tim is in number two
E. Tim is in number six

ANSWERS

24	B	34	D	44	A
25	B	35	D	45	D
26	D	36	C	46	C
27	A	37	A	47	E
28	B	38	E	48	C
29	A	39	A	49	D
30	C	40	B		
31	B	41	A		
32	C	42	B		
33	B	43	E		

EXPLANATIONS:

24. It is mentioned in the conditions that Javed was bitten on 6th and symptoms will appear on 8th, two days after 6th.
25. If Farooq was infected then this means either he was bitten or Javed was bitten one day before they worked together. Therefore, Javed was bitten on 6th and symptoms appeared on 8th.
26. Javed displayed the symptoms on the 7th, which means he could have been bitten by a fly on the 5th. Hence, statement I and II are true.
27. If Farooq displayed the symptoms, then he was bitten by a fly or mosquito containing virus A because there's no other possibility that Farooq could be infected.
28. If in option A, Z is equal to zero, then $O+O=O$, means it $Z+Z=Z$, but this is not zero therefore, it is evident that Z is non-zero.
In option C, it says that Q is even. It is true because, if we add two similar even no or two similar odd no. then the result is always even no.
 $M+S$ is greater than 8 because there is one carried towards Z to make it C. hence it is also true.
C is greater than Z by 1 because when two less than 10 numbers are added, the carry is always less than 0 or equal to 1. Hence it is true.
Option B, doesn't show any logic and hence this is our answer.
29. According to the condition when A & B are ON & C is OFF in the default setting, then turn switch C on.
30. According to the condition, when B is ON in default setting, then turn ON all switches that are OFF & turn OFF all switches that are ON.
31. If all switches are ON in the second setting, then it means that A & B switches were ON and C was OFF in the default setting. This answer comes from the condition that if A & B are both ON, then C must also be turned ON.
32. According to the condition A is OFF & C must be OFF in all cases. in this scenario only option C is true.
If switch A is OFF, then it means that in default setting it would have been ON. In default setting B would have been OFF, because if it would be ON, then in second setting we would have turned all of them ON. Hence A is ON and B is OFF in default setting. Switch C can be ON or OFF. The available option C is correct because A & B are ON & OFF respectively.
33. If switch B is ON, then
- | | | |
|-----|----|-----|
| A | B | C |
| OFF | ON | OFF |

In default setting, we turned ON into OFF and OFF into ON.

- A B C
ON OFF ON

34.

- A B C
OFF ON OFF

If we turn OFF into ON & ON into OFF, then only switch B will be OFF and others ON.

35. According to condition A & C are one pair of films and B & D is the other and E is to be shown at the end. In case C is shown earlier than E, two cases are possible.

A C B D E & B D A C E

In these scenarios, only option D seems valid.

36. In case D is to be shown earlier than A, possibility is

B B D A C E

DD can only be seen at 2nd position.

37. Option A is correct because it conforms with all the given conditions.

38. Film A and B can be shown only at position 1 and 3, while E is at 5. Therefore A & B can't appear on 4th. 4th position can only be occupied by C or D.

39. The arrangement becomes

B B D A C E

Option C is valid only.

40. If B, D & E are to be shown together, then

A A C B D E

A could only be shown at 1 position.

41. The sequence becomes

A A B C D E

Only option A is correct.

42.

PP NM
1 2 3 4 5 6

Now, O Q and N L are together. If N L is placed at 4 & 5, then O Q must be placed at 1 & 2, hence Q must be before P.

43. If N L is placed at 1 & 2, then O Q must be at 4 & 5, hence Q will be before M.

44. If O is stop 1, a passenger rides at stop 1, passes through Q and drops at P, hence stop O is 1.

45. B & C should be in the sequence and can't be separated by lunch break. As per condition mentioned B must present before C and C is presently at 5. So B presents at fourth position.
46. B can't be placed at position 3 & 6, because in position 3, B would be separated by a lunch break from C and B can't be placed last because C has to follow B. Therefore, in available options, we choose C.
47. According to the condition D must be either at first or last. In question, it is mentioned that B & C should be followed by D. Therefore B, C & D should be at 4, 5 and 6. C lies at 5th spot.
48. If F and E are at 5 & 6 position, then D is at 1st position because it can be no. 1 or no. 6. B & C must be together & can't be separated by lunch break and therefore had to be placed at 2 & 3.
A B C A F E E
The only possible position for A is to present 4th.

END OF THE SECTION