IBA Regular Batch

ANALYTICAL ABILITY: PUZZLE

Lecture-1+2

Name:

Batch:

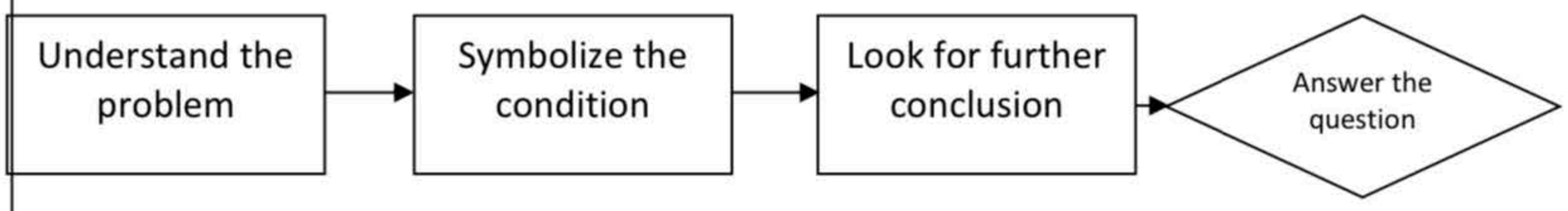
CAPSTONE EDUCATION

152/2/A-2 GREEN ROAD, PANTHAPATH SIGNAL,
ROWSHAN TOWER, 4TH FLOOR, DHAKA-1205
01972-277866, 016-30313031

The most common puzzle types

1. Scheduling types
2. Linear ordering
3. Selection puzzles.
4. Group Puzzles
5. Linking/Map/Networking

How to Approach:



Symbolization:

1. Use initials. It will make things easy. If there are three states named Arizona, Texas, Utah you can name them as A, T, U
2. If it is said that two persons sit R & T are standing next to each other then symbol is RT or TR.
3. If the condition implies, B takes place immediately before A, we can symbolize it as BA.
4. If the condition states that B's performance for a program is sometime before A's, then we can write.

   B …… A
5. If two element A and B can never be next to each other. If can be written as

   ~~AB~~.
6. If A is in group 1 then B is in group 2, then you can write it as–

   $A_1 \longrightarrow B_2$

Problem 1

A personnel officer is scheduling a single interview with each of seven individuals: Fay, Gary, Julio, Mary, Nicholas, Pilar, and Teresa. Each interview is to be 30 minutes in length, and the interviews are to be scheduled back-to-back, starting at 9 a.m., according to the following conditions:

Gary's interview must be scheduled to begin at either 9 a.m. or 10:30 a.m. Pilar's interview must be scheduled either as the next interview after Gary's interview or as the next interview after Nicholas' interview. Nicholas' interview must be scheduled to occur sometime after Mary's interview and sometime before Fay's interview. Julio's interview must be scheduled to begin exactly one hour after Teresa's interview is scheduled to begin.

1. Which of the following is an acceptable schedule for the seven people?

	9 a.m.	9:30 a.m.	10 a.m.	10:30 a.m.	11 a.m.	11:30 a.m.	12 noon
A.	Gary	Nicholas	Pilar	Mary	Teresa	Fay	Julio
B.	Gary	Pilar	Teresa	Mary	Julio	Nicholas	Fay
C.	Mary	Gary	Pilar	Teresa	Nicholas	Julio	Fay
D.	Mary	Teresa	Julio	Gary	Nicholas	Pilar	Fay
E.	Teresa	Pilar	Julio	Gary	Mary	Nicholas	Fay

2. Which of the following people can be scheduled for the interview that begins at 9 a.m.?

   (A) Fay B. Julio C. Mary D. Nicholas E. Pilar

3. The earliest time that Julio's interview can be scheduled to begin is

   A. 9:30 a.m. B. 10 a.m. C. 10:30 a.m. D. 11 a.m. E. 11:30 a.m.

4. If Nicholas' interview is scheduled to begin at 9:30 a.m., who must be scheduled for the interview that begins at 11 a.m.?

   A. Fay B. Julio C. Mary D. Pilar E. Teresa

5. If the interview schedule shows Teresa's interview as the next after Pilar's and Pilar's interview as the next after Nichoals', how long after Gary's interview is scheduled to begin must Julio's interview be scheduled to begin?

A.30 minutes B. 1 hour C. 90 minutes D. 2 hours E. 3 hours

6. If Teresa is scheduled for the interview that begin at 9 a.m., Fay's interview must be scheduled to begin at

A. 9:30 a.m. B. 10:30 a.m. C. 11 a.m. D. 11:30 a.m. E. 12 noon

Problem 2:

Questions 1-6
The recipe for Hearty Noodle Soup calls for six ingredients – noodles, onions, potatoes, rosemary, sage, and tomatoes – to be added one at a time into a potful of water. The ingredients must be added according to the following directions:
The sage is added fourth.
The onions are added immediately before the tomatoes are added.
The noodles are added sometime before the sage is added and sometime before the rosemary is added.
The potatoes are added sometime before the rosemary is added.

1. Which of the following is an acceptable order, from first to last, in which the ingredients could be added?
A.Noodles, onions, tomatoes, sage, potatoes, rosemary
B.Noodles, potatoes, rosemary, sage, tomatoes, onions
C.Noodles, rosemary, potatoes, sage, onions, tomatoes
D.Potatoes, onions, tomatoes, sage, noodles, rosemary
E.Potatoes, onions, tomatoes, noodles, sage, rosemary
2. If the potatoes are added fifth, which of the following must be true?
A. The noodles are added first. B. The noodles are added second. C. The onions are added first.
D. The rosemary is added sixth. E. The tomatoes are added third.

3. If the tomatoes are added sixth, which of the following can be true?
A. The noodles are added third. B. The onions are added second. C. The potatoes are added first.
D. The potatoes are added fifth E. The rosemary is added second.
4. If the noodles are added third, which of the following must be true?
A. The potatoes are added first. B. The potatoes are added second. C. The rosemary is added fifth.
D. The tomatoes are added second. E. The tomatoes are added sixth.
5. If the onions are added sometime before the sage is added, which of the following must be true?
A. The noodles are added first. B. The noodles are added third. C. The potatoes are added third.
D. The potatoes are added fifth. E. The tomatoes are added second.
6. Which of the following is a complete and accurate list of the ingredients any one of which could be the first ingredient added?
A. Noodles, potatoes B. Noodles, tomatoes C. Onions, rosemary
D. Noodles, onions, potatoes E. Noodles, potatoes, tomatoes

Problem 3

Access to the XRT computer's data sets is obtained by entering job names into the computer. Each job name must consist of a three-word sequence that conforms to the following rules:
Each word must consist of three, five, or seven letters.
The letters R, T, and X must appear exactly once in each job name, not necessarily in that order.
The third word must contain more letters than the second word.
Each word must begin with a different letter.
1. Which of the following could be a job name for the XRT computer?
A. AXE DIVER BOAST B. BOX ROAM NEVER C. CALLS EXERT WINDOWS

D. EXPECT ONE PICTURE E. INCOME TAX RETURNS

2. If BOXER is the second word in a job name for the XRT computer, which of the following could be the first and third words, respectively?

A. ARM RUNNING B. BID TAMES C. CAMPS, TRAINER D. DID, STEAMED E. FOX, RENTED

3. If EXTRA is the third word in a job name for the XRT computer, which of the following CANNOT be the second word?

A. ACE B. BEE C. END D. FOE E. GUM

4. How many letters can the second words in job names for the XRT computer have?

A. Three, but they cannot have five or seven B. Five, but they cannot have three or seven C. Seven, but they cannot have three or five D. Three or five, but they cannot have seven E. Five or seven, but they cannot have three

Problem 4

At a large airport, the airport loop bus travels to Terminal A, Terminal B, and Long-Term Parking. The bus makes four stops at Terminal A—These are called A1, A2, A3, and A4, in that order. Next, the bust makes three stops at Terminal B—B1, B2, and B3, in that order. The bus then stops at Long-Term Parking. From Long-Term Parking the bus proceeds to A1 and repeats the entire loop.

At the same airport, an express monorail travels back and forth between A3 and Long-Term Parking only, and another express monorail travels back and forth between B2 and Long-Term Parking only.

The loop bus and two monorails are the only ways to move among the stops above. All transportation at the airport operates continuously and is available at no charge to all who wish to travel.

1. To travel from Long-Term Parking to A4 making the fewest possible intermediate stops, a person must take the

   A. loop bus, but neither monorail
   B. monorail to Terminal A, but neither the loop bus nor the other monorail
   C. loop bus first and the monorail to Terminal A second
   D. monorail to Terminal A first and the loop bus second
   E. monorail to Terminal B first and the loop bus second

2. Which of the following could be the second intermediate stop for a person traveling from A2 to B3?

   A. A3 B. B1 C. B2 D. B3 E. Long-Term Parking

3. If all of the following trips are to be made with the fewest possible intermediate stops, the trip that requires use of both a monorail and the loop bus is

   A. A2 to A3 B. A4 to B1 C. Long-Term Parking to A2
   D. Long-Term Parking to B2 E. none of those

Class Practice

Question 1-5

In order to gain full course for her tour of a foreign city. Sue must visit exactly seven famous points of interest – a factory, a garden, the harbor, a library, a museum, a palace, and a theater. Any tour plan that Sue devises will allow her to keep to her timetable and is thus acceptable, except that she must plan her tour to conform with the following conditions:

The factory must be one of the first three points visited.
The harbor must be visited immediately before the garden.
The library can be neither the first nor the last point visited.
The museum must be either the first or the last point visited.
The palace must be one of the last three points visited.

1. Which of the following is an acceptable order in which Sue may tour all seven points of interest?

   A. Factory, theater, harbor, library, palace, garden, and museum
   B. Harbor, garden, factory, library, theater, palace, and museum
   C. Library, theater, factory, harbor, garden, museum, and palace

D. Museum, factory, palace, harbor, library, garden, and theater
E. Museum, library, harbor, garden, factory, palace, and theater

2. If, on her tour, Sue visits the theater, the library, and the factory, one directly after the other in the order given, she must visit the garden.
A. second B. third C. fourth
D. fifth E. sixth

3. If Sue begins her tour at the harbor, which of the following could be the fourth point of interest the visits on the tour?
A. The factory B. The garden C. The library
D. The museum E. The palace

4. If Sue is to visit the palace sixth, she could visit the harbor in any of the following positions on her tour EXCEPT
A. first B. second C. third
D. fourth E. fifth

5. If Sue visits exactly one point of interest between her visits to the factory and the palace, that point must be either the
A. garden or the harbor
B. garden or the theater
C. harbor or the museum
D. library or the museum
E. library or the theater

Question 6-10

A woman plans to plant exactly six kinds of herbs: oregano, sage, rosemary, parsley, marjoram, and thyme. She places six pots side by side in a straight line and numbers the pots consecutively from 1 to 6, left to right. She will plant only one kind of herb in each pot. The arrangement of the herbs is subject to the following conditions:

Oregano must be planted in some pot to the left of parsley.
Marjoram must be planted in some pot to the left of thyme.
Sage cannot be planted in pot 1.
Rosemary must be planted next to oregano.

6. Which of the following arrangements of herbs from pot 1 through 6, respectively, conforms to the conditions above?
A. Thyme, oregano, rosemary, marjoram, parsley, sage
B. Sage, marjoram, thyme, rosemary, oregano, parsley
C. Marjoram, sage, thyme, parsley, rosemary, oregano
D. Oregano, parsley, marjoram, thyme, sage, rosemary
E. Rosemary, oregano, marjoram, sage, parsley, thyme

7. If sage is planted in some pot to the right of parsley, which of the following must be true?
A. Sage is planted in some pot to the right of oregano
B. Sage is planted in some pot to the right of marjoram
C. Sage is planted in some pot to the right of thyme
D. Parsley is planted in some pot to the left of marjoram
E. Parsley is planted in some pot to the left of rosemary

8. If thyme is planted in some pot to the left of oregano, which of the following must be true?
A. Thyme is planted in some pot to the left of sage

B. Thyme is planted in some pot to the left of rosemary
C. Oregano is planted in some pot to the left of sage
D. Oregano is planted in some pot to the left of rosemary
E. Oregano is planted in some pot to the let of marjoram

9. If parsley is planted in some pot to the left of marjoram, marjoram could be planted in which of the following pots?
A. 1 B. 2 C. 3 D. 4 E. 6

10. If oregano is planted next to thyme, which of the following must be true?
A. marjoram is planted in pot 1 B. Sage is planted in pot 2 C. Rosemary is planted in pot 3
D. Oregano is planted in pot 4 E. Thyme is planted in pot 5

Question 11-16

A gardener has to plant exactly four varieties of flowers in a flower bed, one variety in each of four rows in an ascending order of height from the first row to the fourth row. The seven varieties available to the gardener are, in ascending order of height, red begonias, pink petunias, orange marigolds, red geraniums, white snapdragons, yellow zinnias, and pink cosmos. The following restrictions on color arrangements apply:

No two varieties of the same color can be planted. Orange flowers cannot be planted in a row immediately adjacent to a row of yellow flowers.

11. Which of the following is a color arrangement, from first row to fourth row, that the gardener can select for the flower bed?
A. Pink, red, white, pink B. Pink, orange, white, red C. Red, orange, yellow, pink
D. Red, white, yellow, pink E. Red, pink, yellow, white

12. If the gardener plants the geraniums in the third row and the snapdragons in the fourth row, then which of the following must also be planted?
A. The begonias and the petunias B. The begonias and the marigolds
C. The petunias and the marigolds D. The petunias and the zinnias
E. The petunias and the cosmos

13. If the gardener plants the zinnias in the third row, then which of the following can be planted in the second row?
A. The begonias B. The petunias C. The marigolds D. The geraniums E. The cosmos

14. Flowers of which of the following colors CANNOT be planted in the third row?
A. Orange B. Pink C. Red D. White E. Yellow

15. If the gardener plants the begonias and the petunias, then which of the following must also be planted:
A. The marigolds B. The geraniums C. The snapdragons D. The zinnias E. The cosmos

16. If the gardener does not plant any red flowers, then the total number of acceptable arrangements of the flower garden is
A. one B. two C. three D. four E. five

Lecture 2

Set-1

Directions: Solve each of the following problems and mark the correct answer on your Answer sheet.

Questions 1 to 3 are based on the following information.

The items on a restaurant menu will consist of exactly four dishes to be selected from the seven dishes P, Q, R, S, T, U, and V according to the following conditions:

- Either P or T must be in the menu, but they cannot both be in the menu.
- If T is in the menu, the Q must be in the menu
- If U is in the menu, then neither P nor R can be in the menu

1. If P is in the menu, any of the following groups of three could make up the rest of the menu EXCEPT
   A. Q, S, and V B. Q, R, and S C. Q, R, and V D. S, U, and V E. R, S, and V
2. If U is in the menu, which of the following must also be in the menu?
   A. R B. P C. Q D. V E. S
3. If S is in the menu but needs to be replaced, which of the following dishes, if not in the menu, is eligible to replace S regardless of the composition of the rest of the menu?
   A.V B. U C. T D. R E. P

Questions 4 to 7 are based on the following information.

A Six negotiators, three each from Bangladesh and India- Mihir, Anil, Priyanka, Rifat, Sattar, and Taher - are to be seated at a round table to discuss Ganges water sharing. There are exactly six chairs around the table. Each negotiator sits facing the center of the table and is directly opposite a negotiator across the table. The seating arrangement is subject to the following restrictions:

Taher cannot sit next to Priyanka. Sattar cannot sit next to Mihir. Rifat must sit next to Mihir.

4. If Taher sits next to Mihir and Sattar sits next to Rifat, which of the other negotiators must sit next to Sattar?
   A. Rifat B. Taher C. Mihir D. Anil E. Priyanka
5. If Rifat sits next to Sattar on Sattar's right side, who must sit next to Rifat on Rifat's right side?
   A. Mihir B. Anil C. Priyanka D. Sattar E. Taher

6. If Taher sits directly across the table from Anil, who must sit on either side of Priyanaka?
   A. Mihir and Sattar B. Anil and Sattar C.Anil and Rifat
   D. Mihir and Anil E. Rifat and Taher
7. Which of the following is an acceptable sequence of negotiators around the table?
   A. Mihir, Sattar, Taher, Priyanka, Rifat, Anil B. Mihir, Sattar, Rifat, Taher, Priyanka, Anil
   C. Taher, Anil, Priyanka, Sattar, Mihir, Rifat D. Taher, Sattar, Rifat, Mihir, Anil, Priyanka
   E. Taher, Rifat, Mihir, Priyanka, Sattar, Anil

Questions 8 to 10 are based on the following information.

An IBA student who has exactly four subjects - Finance, Marketing, HRM, and Information Management - to prepare for exams in the next week has made the following determinations:

- Finance has priority over Marketing.
- HRM has priority over Information Management
- If one subject has priority over another, he must take preparation for the subject with priority earlier than for the other one.

8. Given only the determinations above, each of the following is a possible sequence in which the four subjects could be prepared for EXCEPT
   A. Finance, HRM, Information Management, Marketing
   B. Finance, HRM, Marketing, Information Management
   C. Finance, Marketing, HRM, Information Management
   D. HRM, Marketing, Finance, Information Management
   E. HRM, Finance, Information Management, Marketing
9. If each of the subjects takes equally long to prepare, it must be true that
   A. Finance is prepared before HRM is prepared
   B. HRM is prepared before Information Management is prepared
   C. Finance is prepared before Information Management is prepared
   D. Marketing is prepared before HRM is prepared
   E. HRM is prepared before Marketing is prepared
10. There would be exactly one order in which the four subjects would have to be prepared if it were determined that
   A. Finance has priority over Information Management
   B. Finance has priority over HRM
   C. Information Management has priority over Marketing
   D. HRM has priority over Marketing
   E. Information Management has priority over Finance

Questions 11 to 15 are based on the following information.

The only persons who attended a meeting were four Chairpersons and the Secretaries of three of those Chairpersons. The Chairpersons were R, S, T, and W; the Secretaries were L, N, and V. Each person in turn delivered a report to the group as follows:

- Each Secretary present spoke immediately after his or her Chairperson.
- S was the first Chairperson to speak, and T was the second Chairperson to speak.

11. All of the following are possible orders of speakers EXCEPT ;
   A. S, L, T, V, W, R, N B. S, T, V, N, W, R, L
   C. S, N, T, V, R, W, L D. S, T, L, W, N,R, V E. S, T, L, R, N, W, V
12. If L spoke immediately after R and immediately before W. and W was not the last speaker.
   R spoke
   A. Second B. Third C. Fourth D. Fifth E. Sixth
13. If R spoke after L, and L was the third of the Secretaries to speak, all of the following statements could be true EXCEPT:
   A. W spoke immediately after V
   B. The order of the first four speakers was S, V, T, N
   C. W's Secretary was present
   D. L was the fourth speaker after S
   E. The Chairpersons spoke in the order S, T, W, R.
14. Which of the following must be true?
   A. If the second speaker was a Chairperson, the seventh speaker was a Secretary.
   B. If the second speaker was a Secretary, the seventh speaker was a Chairperson.
   C. If the third speaker was a Secretary, the seventh speaker was a Chairperson.
   D. If the third speaker was a Chairperson, the seventh speaker was a Secretary.
   E. If the seventh speaker was a Secretary, the first and third speakers were Chairpersons.

15. If V is S's Secretary, N could be the person who spoke immediately
A. After T B. Before L C. Before V D. Before T E. After V

Set-2

Q 1 to Q5

A real estate developer has built a new office building containing six floors, numbered 1 through 6 from bottom to top. Each of six companies - F, G, I, J, K, and M - must be assigned an entire floor for office space. The floors must be assigned according to the following conditions:

- F must be on a lower floor than G.
- I must be either on the floor immediately above M or on the floor immediately below M.
- J can be neither on the floor immediately above M nor on the floor immediately below M.
- K must be on floor 4

1. Which of the following is an acceptable assignment of companie to floors 1 through 6?
A. F, I, G, K, J, MX B. G, I, M, K, F, JX
C. J, F, G, K, I, M D. M, I, K, F, G E. K, E, J, G, M, I
2. If M is on floor 2, any of the following could be true EXCEPT:
A. F is on floor 3 B. F is on floor 5 C. I is on floor I
D. J is on floor 5 E. J is on floor 6
3. If J is on floor 3, which of the following pairs of companies must be on consecutive floor?
A. F and G B. F and K C. G and J D. I and J E. K and M
4. Each of the following pairs of companies could be on consecutive floors EXCEPT:
A. F and I B. F and M C. J and K D. I and K E. G and I
5. If F is on floor 5. Which of the following must be true?
A. I is on floor 2 B. I is on floor 3 C. J is on floor 1
D. J is on floor 2 E. M is on floor 3

Q 6 to Q10

A three member committee must be formed from amongst three professors - F, G, H three assistant professors - K, L, and M, subject to the following conditions:

- The committee must have at least one professor and one assistant professor
- If F is included, G cannot be included
- Neither H nor L can be appointed unless the other is also appointed
- If K is included, M must also be included

6. Which of the following is a valid committee?
A. F, H, M B. G, L,M C. H, K,L D. H, L,M E. K, L,M
7. If two professors are in the committee, the committee must include
A. F B. G C. K D. L E. M
8. If two assistant professors are in the committee, the committee must include
A. F B. G C. K D. L E. M
9. If F and M are included in the committee, which of the following must be true?
A. The committee has 2 professors B. The committee has 2 assistant professors
C. G is in the committee D. L is in the committee
E. K is not in the committee

10. If the same conditions mentioned earlier are also applicable to a four-member committee selected from the same group of teachers, which of the following will be true?

A. If F is included, M must also be included B. If G is included, K must also be included

C. lf H is included, F must also be included D. If M is included, K must also be included

E. If L is included, G must also be included

Q 11 to Q 15

The manager of a bus company is preparing a departure schedule for seven buses from Dhaka to Dinajpur. The buses are B1, B2, B3, B4, B5, B6, and B7. The buses will depart one per hour, from 9:00 a.m. to 3:00 p.m. The schedule must conform to the following requirements:

- B1 must depart at 9:00 a.m.
- B5 must depart later than B3 and B2
- B4, B6, and B7 must depart on consecutive hours in that order

11. If B7 departs at noon, B5 must depart at

A. 10:00 a.m. B. 11:00 a.m. C. 1:00p.m. D. 2:00 p.m. E. 3:00 p.m.

12. If B3 and B4 depart at 11.00 a.m. and 12 noon respectively, B2 must depart at

A. 9:00 a.m. B. 10:00 a.m. C. 1:00p.m. D. 2:00 p.m. E. 3:00 p.m.

13. Which of the following combination of buses could depart consecutively?

A. B1, B4, B3 B. B2, B3, B6 C. B4, B5, B6

D. B6, B7, B3 E. B6, B7, B4

14. If B6 departs at 2:00 p.m. B5 must depart at

A. 10:00 a.m. B. 11:00 a.m. C. 12:00 noon D. 1:00 p.m. E. 2:00 p.m.

15. What is the latest time at which B2 can depart?

A. 11:00 a.m. B. 12:00 noon C. 1:00p.m. D. 2:00 p.m. E. 3:00 p.m.