

## BINARY LOGIC

**Information:** Three persons A, B and C gave these statements:

- A said, either Freedom Party or Green Party won the elections.
  - B said, Freedom Party won.
  - C said, neither Freedom Party nor Green Party won the elections.
  - Of these persons, only one person is wrong.
1. Who won the elections?
    - a) Freedom Party
    - b) Green Party
    - c) Data Inadequate
    - d) None of these

The police rounded up Tolu, Molu, and Golu yesterday because one of them was suspected of robbing the local bank. The 3 suspects gave the following statements after intensive questioning:

Tolu: I'm innocent.  
 Molu: I'm innocent.  
 Golu: Molu is the guilty one.

2. Who robbed the bank among the three persons, if only one of the statements will be true?
  - a) Molu
  - b) Tolu
  - c) Golu
  - d) None

Three criminals were arrested for shop lifting. However, when interrogated, only one of them told the truth in both his statements, while the other two each told one true statement and one lie. The statements were:

Ti-Ti: (a) Chi-chi passed the goods.  
 (b) Ki- Ki created the diversion.  
 Ki-Ki : (a) Ti-Ti passed the goods.  
 (b) I created the diversion.  
 Chi-Chi : (a) I took the goods out of the shop.  
 (b) Ki-Ki passed goods.

3. Who created the diversion?
  - a) Ti-Ti
  - b) Chi-chi
  - c) Ki-Ki
  - d) Either 1 or 2
4. Which of these statements is correct?
  - a) Chi-Chi created the diversion.
  - b) Ti-Ti took the goods out of the shop.
  - c) Chi-Chi passed the goods.
  - d) Ti-Ti passed the goods.

**Direction:** There are 3 closed cartons in a room. One of the cartons contains cash. There is a printed message that is displayed outside each carton. Only one message is True and the other two messages are False. The first carton has the message: Cash is not in the Carton. The second carton has the message: No cash in the Carton. The third carton has the message: Cash is in the second carton.

5. Which carton has the cash?
  - a) First
  - b) Second
  - c) Third
  - d) Cannot be determined

**Direction:** Mohan went to a city on which there were three kinds of people. People of one kind always spoke

the truth. People of the second kind always lied. People who belonged to the third kind spoke the truth and lied alternately. The city had only 3 fruits i.e. apple, mango and banana. Mohan found three people X, Y, and Z asked them about their favourite fruits.

Their responses were as follows.

X: I like apples. Y likes mango  
 Y: Z likes mango. X likes banana  
 Z: I like apples. X likes banana

If it is known that X, Y and Z belonged to different kinds of people and each one of them liked a different fruit, then answer the following questions.

6. Who likes apple?
  - a) X
  - b) Y
  - c) Z
  - d) cannot be determined
7. Who belongs to the kind of truth-tellers?
  - a) X
  - b) Y
  - c) Z
  - d) cannot be determined
8. Who belongs to the kind of switchers?
  - a) X
  - b) Y
  - c) Z
  - d) cannot be determined

Chetan, Mohan and Thomas participated in a race and one of them won the race. They belong to three different communities - Saki, Noro, and Carro. Sakis always speak the truth, Noros always lie and Carros tell the truth and lie alternatively. (Each of Chetan, Mohan, and Thomas belongs to one community.) After the race they gave these statements.

Chetan:  
 I would have won the race if Thomas had not obstructed me at the last moment.  
 Thomas always speaks the truth.  
 Mohan:  
 Chetan won the race.  
 Thomas is not a Noro.  
 Thomas:  
 I hadn't obstructed Chetan at the last moment.  
 Mohan won the race.

9. Thomas belongs to which community?
  - a) Saki
  - b) Noro
  - c) Carro
  - d) Either 2 or 3

**Direction:** Three boys- Ashish, Bhanu, and Chintu replied to some questions, in the following manner: We know that exactly one of these boys is a Doctor, one is a Painter and one is an Athlete. Also, one of them always speaks the truth, one always lies and one alternates between the truth and the lie.

Ashish:	Bhanu:	Chintu:
I am a Doctor	Chintu is an Athlete	I am not a Painter
Bhanu is a Painter	Ashish is not a Doctor	Bhanu is not a painter
I am a Switcher	I am a Lie-teller	Ashish is a Lie-teller

10. Who is Doctor?  
a) Ashish b) Bhanu c) Chintu d) CND
11. Who is lie teller?  
a) Ashish b) Bhanu c) Chintu d) CND
12. Who is an athlete?  
a) Ashish b) Bhanu c) Chintu d) CND
13. Who is an alternate?  
a) Ashish b) Bhanu c) Chintu d) CND
14. Who is painter?  
a) Ashish b) Bhanu c) Chintu d) CND

**Direction:** Uday, Ramesh and Suresh made the following statements regarding the type of vehicle they own. Each one of them belongs to one category of Truth-Speaker, Lie-teller, or Switcher. Only one among them is a Truth-Speaker. Further, each of them own a different vehicle and each of them owns exactly one among car, cycle and bike.

Uday	Ramesh	Suresh
Suresh does not own a car	Uday does not own a bike	Uday is a Lie-teller
I am not an Switcher	I am not a Lie-teller	Ramesh is a Truth-Speaker
Ramesh does not own a car	Suresh does not own a cycle	I own a cycle

15. Who owns a car?  
a) Uday b) Ramesh  
c) Suresh d) CBD
16. Ramesh belongs in which category?  
a) truth teller b) lie teller  
c) switcher d) CBD
17. Who owns Cycle?  
a) Uday b) Ramesh  
c) Suresh d) CBD
18. Who is belong to the truth-teller category?  
a) Uday b) Ramesh  
c) Suresh d) CBD

**Direction:** Three Persons – Ankita, Bipasha and Cheku – went to a Stationery shop. Each of the three bought a different item from among Mouse, Keyboard and Monitor, each of which is of a different colour Black, Pink and Yellow. Their friend Ayushi asked them “What did you buy from the Electronic shop?” Their Replies were as follow.

- Ankita: I did not buy a Mouse.  
I bought a Pink coloured item.  
Bipasha bought a Monitor.
- Bipasha: I bought a Keyboard.  
Cheku bought a Black coloured item.  
Ankita bought a Monitor.
- Cheku: Bipasha bought a Mouse.  
I did not buy a Monitor.  
Ankita bought a Black coloured item.

Each one of them is a truth-teller or a liar or an alternator. Truth- teller is one who always speaks truth; an alternator is a person, Who alternates between truth and lie; and liar is a person who always lies. Ayushi knows that Bipasha bought a Monitor.

19. If Ankita is a truth-teller, then which item is in Pink?  
a) Keyboard  
b) Monitor  
c) Mouse  
d) CND
20. If Bipasha is an alternator, then who bought the Black coloured item?  
a) Ankita  
b) Bipasha  
c) Cheku  
d) CND
21. Which of the following statements is/are true?  
(i) Ankita is a truth- teller.  
(ii) Bipasha is an alternator.  
(iii) Cheku is a liar.

- a) Only (i)  
b) (i) and (ii)  
c) (ii) and (iii)  
d) None of these

22. If in all six false statements were made, then chiki bought which coloured item?  
a) Pink  
b) Yellow  
c) Black  
d) Pink or Yellow

**Direction:** I went to a bank, where I met three employees Amit, Bablu and Chandan of that bank. When I asked them “who is the Officer?”, their replies were as follows.

- Amit: I am the Officer.  
Bablu is an Assistant.  
Chandan is a Typist.
- Bablu: Chandan is the Officer.  
I am not a Typist.  
Amit is not an Assistant.
- Chandan: Exactly one of my statements is false.  
Amit is not a Typist.  
Bablu makes exactly one false statement.

One among these three employees is a truth-teller. One of them is the Officer, one is an Assistant and the other is a Typist. Each one of them is one among truth-teller, liar, and an alternator. Truth- teller is one who always speaks truth; alternator is a person, Who alternates between truth and lie; and liar is a person who always lies.

23. Who is the truth-teller?  
a) Bablu b) Chandan  
c) Amit d) CND
24. What is the designation of Chandan?  
a) Officer b) Assistant

c) Typist

d) CND

25. Who is a liar?

- a) Chandan  
c) Bablu

- b) Amit  
d) None of these

**Direction:** Four persons Pooja, Neha, Madhu, and Siya are the top four rankers in each of the subjects Quant, G. S., English, and Reasoning not necessarily in the same order. No person got the same rank in any two subjects. When asked about their ranks in each of these subjects, they made the following statements.

Pooja: Madhu is the fourth ranker in English.  
Siya is the fourth ranker in G. S.  
Neha is the first ranker in Quant.

Neha: I am the first ranker in Reasoning.  
Siya is the first ranker in English.  
Madhu is the first ranker in G. S.

Madhu: I am the first ranker in Reasoning.  
Siya is the fourth ranker in English.  
Pooja is the third ranker in Quant.

Siya: Pooja is the third ranker in Reasoning.  
I am the fourth-ranked in Quant.  
Neha is the second ranker in G. S.

It is known that each of them made a true and a false statement alternate and in total, they made equal numbers of true and false statements.

26. Who is the third ranker in English?

- a) Pooja b) Neha c) Madhu d) CBD

27. What is the rank of Siya in G. S.?

- a) 4 b) 3 c) 2 d) CBD

28. In which subject did Neha get a better rank than Madhu but a worse rank than Pooja?

- a) Quant b) Reasoning  
c) G. S. d) English

29. What is the rank of Neha in Reasoning?

- a) 2 b) 3 c) 4 d) 1

30. In which subject did Pooja get a worse rank than both Neha and Siya?

- a) Quant b) G. S.  
c) English d) Reasoning

**Direction:** Four boys Anil, Bhumi, Charu and Dev are studying in St. Mary. Each studying in a different class among VII, VIII, and X not necessarily in the same order. On that island, each person belongs to one of the categories: truth-tellers (who always speak the truth), liars (who always lie), and alternators (who alternate between true and false statements, in any order). When asked about their studies and categories, they made the following statements

Anil: Dev is not a truth-teller.  
Charu is not studying in IX.  
I am studying in VII.

Bhumi: Charu is not a truth-teller.  
Anil is studying in VIII.

Dev is not studying in IX.

Charu: Bhumi is studying in VIII.  
Bhumi is a liar.  
Anil is not studying in X.

Dev: Anil is not an alternator.  
Bhumi is studying in VIII.  
Chandu is not studying in VIII.

31. Who is studying class X?

- a) Anil b) Bhumi  
c) Charu d) CBD

32. Who among them is an alternator?

- a) only Anil b) only Bhumi  
c) only Charu d) only Dev

33. How many of Anil's statements is/are true?

- a) 3 b) 2 c) 1 d) 0

34. In which class did Dev study?

- a) X b) IX c) VII d) VII

35. What is the difference between the total number of true and false statements?

- a) 4 b) 2 c) 0 d) CND

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**Direction:** While going on a road, I met three persons – Manish, Raman and Karan. Each of them belongs to a different profession among Banker, Manager and Teacher and each of them owns a different car among Honda, Toyota and Nissan. Each of them made the following statements as given below.

Manish: Raman is a Manager.  
I am a Banker.  
Karan owns Nissan.

Raman: I am not a Teacher.  
Manish owns Honda.  
Karan does not own Toyota.

Karan: Manish is not a Teacher.  
I am an Banker.  
Raman does not own Toyota.

Each one of them is one among truth-teller, liar, and an alternator. Truth-teller is one who always speaks truth; alternator is a person, who alternates between truth and lie; and liar is a person who always lies.

36. Who owns a Honda?

- a) Manish b) Raman  
c) Karan d) CND

37. Who is an Banker?

- a) Manish b) Raman  
c) Karan d) CND

38. Who is the alternator?

- a) Raman b) Karan  
c) Manish d) Either A or B

39. Who is the liar?

- a) Manish                      b) Karan  
c) Raman                      d) Either B or C

**Direction:** There were four people: Abhi, Ankita, Amita and Alka whom Mr. Bingo met in an unknown island. Mr. Bingo went to that island looking for four new spices – Turmeric, Salt, Pepper and Chilli each of which is available in a different region among:

East, West, North, South of that island, not necessarily in that order. When he asked them about the whereabouts of the spices, their replies were as follows:

Abhi: Turmeric is available in the Eastern region.  
Salt is available in the Western region.  
Pepper is available in the Northern region.

Ankita: Salt is available in the Western region.  
Pepper is not available in the Southern region.  
Chilli is available in the Eastern region.

Amita: Pepper is not available in the Eastern region.  
Salt is available in the Eastern region.  
Turmeric is not available in the Western region.

Alka: Chilli is available in the Western region.  
Turmeric is not available in the Western region.  
Chilli is available in the Southern region.

**Direction:** Mr. Bingo was confused by the replies. He came to know that each one among them is an alternator (each of them alternates between true and false statements, in any order).

40. Which spice is available in the Eastern region?

- a) Turmeric                      b) Salt  
c) Pepper                      d) Chilli

41. In which region, is Turmeric available?

- a) East                      b) West  
c) North                      d) South

42. Which of the following is true?

- a) The first statements of Amita is False.  
b) Two of the statements of Ankita are false.  
c) Pepper is available in the western region, is false.  
d) Chilli is not available in the southern region, is false.

**Direction:** Arunesh has four friends, each one of them works with a different bank among Axis bank (AB), Dena bank (DB), Indian Overseas Bank (IOB) and State bank of India (SBI). Each one of them is one among truth-teller, liar, and an alternator. Truth-teller is one who always speaks truth; alternator is a person, who alternates between truth and lie; and liar is a person who always lies. It is known that Anjali works with IOB. When he asked them about the bank in which they work each of them made two statements.

Anjali: I work with SBI.  
Priya works with AB.  
Priya: Neha works with DB.  
Vinna works with SBI.

Neha: I work with IOB.

Anjali works with IOB.

Vinna: I work with DB.  
Priya works with DB.

43. How many false statements are made by these four together?

- a) 3                      b) 4                      c) 5                      d) 3 or 4

44. Who is/are (an) alternator(s)?

- a) Anjali                      b) Priya  
c) Neha                      d) Neha and Anjali

45. Who works with DB?

- a) Priya                      b) Neha  
c) Vinna                      d) Vinna and Neha

**Direction:** Three persons Petter, Quais and Robert are asked to tell the day of the week in which they were born. None of them was born on a Sunday. The statements made by them are as follows.

Petter: I was born on Friday.  
Quais was born on Tuesday.  
Robert was born neither on Tuesday nor on Monday.

Quais: Petter was born on the day which occurs immediately after the day on which I was born.  
I was born on Wednesday.  
Robert was born on the day which occurs immediately before the day I was born.

Robert: I was not born on Thursday.  
The three of us were born on consecutive days.  
Petter was born on Monday.

**Direction:** Each of these three persons is one among truth teller, liar and alternator. We know that at least one among Petter and Robert is a liar apart from Quais. Truth teller is a person who always speaks truth. Liar is a person who always lies and an alternator is a person who alternates between truth and lie.

46. If Quais's birthday is on Monday, then Petter is an/a?

- a) Truth teller                      b) Liar  
c) alternator                      d) CND

47. What is the maximum possible number of false statements made by the three persons together?

- a) Five                      b) Three  
c) Six                      d) Seven

48. If Robert is a liar, then Quais was born on.

- a) Friday                      b) Monday  
c) Tuesday                      d) CND

49. Which of the following is the day when Quais was born?

- a) Friday                      b) Saturday  
c) Tuesday                      d) CND

**Direction:** Ramesh, Suresh and Mahesh are three people who belong to three different tribes of people. The three tribes are known as knights (those who always speak the truth), Knaves (who always lie) and



Alters(those who alternatively speak the truth and lie).Ramesh said that Suresh is not an alter. Mahesh said that Ramesh is an alter.

50. Who among the following is Knave?  
 a) Suresh b) Ramesh  
 c) Mahesh d) CBD

**Direction:** Ramesh, Suresh and Mahesh are three people who belong to three different tribes. The three tribes are known as knights (those who always speak the truth), Knaves(who always lie) and Alters(those who alternatively speak the truth and lie).Ramesh said that Suresh is not an alter. Mahesh said that Ramesh is an alter.

51. Who is the Knight?  
 a) Suresh b) Ramesh  
 c) Mahesh d) CBD

**Direction:** On an island the inhabitants always answer any question with two sentences- one of which is always true and the other is always false. The head of the island discovers illegal activities, in order to determine the identity of the culprits and also to know more about the next heist on the basis of a plane. You and what it looks like. This is what they have to say:

S : It arrives at 9:00 pm.  
 The color of the plane is only red

R : It arrives at 9:00pm.  
 The color of plane is only Blue.

B : I know at what time ship arrives.  
 R is lying about the time of arrival.

52. At what time does the plane arrive?  
 a) 4 pm b) 9:00pm  
 c) can't say d) won't arrive

53. What is the color of the plane?  
 a) Can't say b) Red  
 c) Blue d) both blue and red

54. Find who among A, B & C is truth-teller, alternator and liar?  
 A says - I am the truth teller.  
 B says - A is truth teller.  
 C says - I am alternator.

55. Find who among A, B & C is truth-teller, alternator and liar?  
 A says: I am the truth teller. B is a liar.  
 B says: I am the alternator. C is the liar.  
 C says: I am the liar. A is the truth-teller.

**Direction:** In a country there are categories of persons – truth tellers, liars and alternators. P met three people, H, B and C from that country. Each of these belong to a different category and made the following statements

H – City X is 30 km to the North of City Y. I am a liar.  
 B – City W is 50 km away to the West of City Z. City M is 50 km away to the south of city W.  
 C – City Y is not to the west of city z. H is a truth-teller.

56. In which direction is city X with respect to city M?  
 a) Northeast b) Northwest  
 c) North d) CBD

57. If the distance between city Y and city Z is 10 km, then how far is city W from city X?  
 a)  $30\sqrt{2}$  b)  $50\sqrt{2}$   
 c)  $30\sqrt{3}$  d)  $40\sqrt{3}$

58. Who among the following is the truth-teller?  
 a) H b) B  
 c) C d) either B or C

**Direction:** The inhabitants of the Island of Middle Andaman Island have very bright and interesting lives. Just as we earthlings have continuity in our routine lives, the inhabitants of the island of island have continuity in both their waking lives as well as their dreams. As a result, the inhabitants of the island have great difficulty in knowing whether they are awake or asleep at a given time. However, the inhabitants can be classified into two types- awakers and aslepers. An awaker is characterized by the fact that everything they believe while they are awake is true and everything they believe while they are asleep is false. An asleper on the other hand, has the characteristic that everything he believes while asleep is true and everything he believes while is false.

59. The island has a king, an advisor and a doctor. At one point, the doctor believed that his bosses were of different types. Twelve hours later, he changed his state (from sleeping to waking or vice versa) and then he believed that the king was an awaker and the advisor was an asleper. What type is the king?  
 a) Awaker b) asleper  
 c) either of two types d) CBD

60. With reference to the previous question, what type is the advisor?  
 a) awaker b) asleper  
 c) either of two types d) CBD

61. At one time, an inhabitant believed that he was both asleep and awake, what was he really?  
 a) Awaker b) Asleper  
 c) either of the two d) CBD

### Answer key.

1.		2.		3.		4.		5.	
6.		7.		8.		9.		10.	
11.		12.		13.		14.		15.	
16.		17.		18.		19.		20.	
21.		22.		23.		24.		25.	
26.		27.		28.		29.		30.	
31.		32.		33.		34.		35.	
36.		37.		38.		39.		40.	
41.		42.		43.		44.		45.	
46.		47.		48.		49.		50.	
51.									