SYLLOGISM

The word "syllogism" is given by Greeks which means 'inference' or 'deduction'. It was introduced by Aristotle.

An example of a question of syllogism is given below.

Directions: In the following questions, two statements are given followed by two conclusions. You have to study the two statements and then decide which of the conclusions follow from the statements.

Mark the right answer from (1), (2), (3), (4) and (5)

Statements: All plants are trees. 
No trees are green.

Conclusions: I. Some plants are green. 
II. No plants are green.

1) Only I follows
2) Only II follows
3) Both I and II follow
4) Either I or II follows
5) Neither I nor II follows

This is a typical question of syllogism. Here the choice (2) is true. Later on we can discuss the method to reach at the answer choice. Now let us see some definitions related to syllogism.

PROPOSITION

A proposition is a sentence that makes a statement and gives a relation between two or more terms.

In logic, any statement is termed a proposition.

Eg: i) All windows are rods 
ii) No cloth is a bay 
iii) Some students are members 
iv) Some green are not white

The parts of proposition are given below.

i) Subject: A subject is the part of the proposition about which something is being said.

ii) Predicate: Predicate is the part of the proposition denoting that which is affirmed or denied about the subject.

eg: In the proposition All novels are songs, something is being said about novels. So novels is the subject. Songs is the predicate here because it affirmed about the subject.

CLASSIFICATION OF PROPOSITIONS

i) Universal positive proposition: A proposition of the form All S are P is called a universal positive proposition. A universal positive proposition is denoted by A.

eg: All girls are disciplined.
All bulbs are lions.

ii) Universal negative proposition: A proposition of the form No S is P is called a universal negative proposition. It is usually denoted by E.

eg: No professors is lazy.
No boxes are baskets.

iii) Particular positive proposition: A proposition of the form Some S are P is called a particular positive proposition. It is usually denoted by I.

eg: Some boys are smarts.
Some boys are cats.

iv) Particular negative proposition: A proposition of the form Some S are not P is called particular negative proposition. It is denoted by the letter O.

eg: Some flowers are not grapes.
Some fans are not black.

In syllogism, there are two types of inferences.
1) **Mediate inference:**

Here conclusion is drawn from two propositions. For example, if you are given *All cats are dogs* and *All dogs are animals*, then a conclusion of the form *All cats are animals* could be drawn from it.

2) **Immediate inference:**

Here conclusion is drawn from only one given proposition. For example, if a given statement is *All gates are blue*, then based on this a conclusion could be drawn that *Some blue are gates*. This is a case of immediate inference.

Two important cases of immediate inference is given below.

a) **Implications**:

If a given proposition is A - type, then it also implies that the I - type conclusion must be true. Let us verify it by considering the proposition, *All elephants are big*. This statement naturally implies that the conclusion *Some elephants are big* must be true. Similarly we can prove that an E - type proposition also implies an O - type conclusion.

b) **Conversion**

Two steps are to be followed in conversion. The first step is to change the subject as the predicate and the predicate as the subject. The second step is to change the type of the given proposition to the pattern given in the following table.

<table>
<thead>
<tr>
<th>Type of the given proposition</th>
<th>Type of the proposition after conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>I</td>
</tr>
<tr>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>O</td>
<td>Cannot be converted</td>
</tr>
</tbody>
</table>

Let us consider the statement *Some posters are good looking*. This can be converted by using the above table as *Some good looking are posters*. In the same way, *No books are pencils* can be converted as *No pencils are books*.

**HIDDEN PROPOSITION**

You may find it difficult to categorise some propositions of the form *Rahim is brilliant*, *Every man talks English*, *Not a single student passed the exam*, *No student except Prem was present*, etc. We shall know, how to find the hidden propositions in such sentences.

**A - type hidden propositions**:

- All positive propositions beginning with 'each', 'every' and 'any'.
- A positive sentence with a particular person as its subject.
- A positive sentence with a very definite exception.

  eg: Each of them plays football.
  He should be awarded.
  All members except Kavitha have a share of profit.

**E - type hidden proposition**

- All negative sentences beginning with 'no one', 'none' and 'not a single'.
- A sentence with a particular person as its subject but a negative sense.
- A negative sentence with a very definite exception.
- An interrogative sentence which is used to make an assertion.

  eg: None can escape from death.
  Swathi is not an IAS officer.
  No student except Salim has attend the party.
  Is there any person who can cheat himself?

**I - type hidden propositions**:

- Positive propositions beginning with words such as 'most', 'a few', 'mostly', 'generally', 'almost', 'frequently', and negative propositions beginning with words such as 'few', 'seldom', 'hardly', 'scarcely', 'rarely' and 'little'.
- A positive sentence with an exception which is not definite.
eg: Very few writers research before they write.
Seldom are people not jealous.
All students except five have failed.

O - type hidden propositions:
- All negative propositions beginning with words such as 'all', 'every', 'any' and 'each'.
- Negative propositions with words as 'most', 'a few', 'mostly', 'generally', 'almost', and 'frequently'.
- Positive words beginning with 'few', 'seldom', 'hardly', scarcely', 'rarely' and little.
- A negative sentence with an exception which is not definite.
  e.g. : All men are not honest
  Most of the books have not been read.
  Girls are usually not brave.
  Rarely is a rich man worried.
  No students except a few are absent.

EXCLUSIVE PROPOSITIONS
A statement beginning with 'only', 'alone', 'none but' or 'none else but' is called exclusive proposition. Such propositions can be reduced to A or E or I type.

Only brave men are pilots.
This sentence means that "No coward man is a pilot" and "All pilots are brave men".

SOLUTION OF SYLLOGISM BY ANALYTICAL METHOD
There are two steps to be followed for solving syllogism by analytical method.

A problem of syllogism consists of two propositions which have one common term. This common term will be the predicate of the first proposition and the subject of the second. If this condition is not satisfied in the given propositions, they should be aligned accordingly.

eg: Statement: All birds are trees.
   Some trees are cows.
   Here the common term is 'trees'. Also it satisfies the above said condition. Hence the statements are properly aligned.

Let us consider another example.

eg:
   Statement: All pencils are bottles
   All bricks are pencils.
   Here the common term is 'pencil'. But it does not satisfy the given condition. So we have to align this pair. This can be aligned easily by changing the order of the statements. The aligned pair will be
   All bricks are pencils.
   All pencils are bottles.

eg: Statements: No watch is hat
   All pins are hats.
   In this pair, the common term is 'hat' and it is the predicate of both the sentences. So we have to align the sentences by converting any of the sentences and changing the order if needed.

   After alignment, the above example will become
   All pins are hats
   No hat is watch.
   While aligning a given pair of statements, the priority should be given while converting, to I-type statements to E-type statements and then to A-type statement, in that order. That is, the rule of IEA should be followed.

   After aligning the given pair of statements, the conclusion can be easily drawn by using the following table.

<table>
<thead>
<tr>
<th>Statement - I</th>
<th>Statement - II</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>A</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>O*</td>
</tr>
<tr>
<td>E</td>
<td>I</td>
<td>O*</td>
</tr>
<tr>
<td>I</td>
<td>A</td>
<td>I</td>
</tr>
<tr>
<td>I</td>
<td>E</td>
<td>O</td>
</tr>
</tbody>
</table>

   No definite conclusion can be drawn for other combinations like A+I, O+A etc, which are not mentioned in the above table.

   For the above given combinations which are aligned properly, the conclusion is a proposition whose subject is the subject of the first statement and whose predicate is the predicate
of the second statements. The common terms disappears.

In the above table, O* implies that the conclusion is of type - O, whose subject is the predicate of the second statement and the predicate of the conclusion is the subject of the first statement.

**SOLVED EXAMPLES.**

1. **Statements :** All bags are toys.
   All toys are keys.
   The sentences are already aligned. From the above given Table, A+A=A. Hence the conclusion is of type - A whose subject is the subject of the first proposition and the predicate is the predicate of the second proposition. So the conclusion is All bags are keys.

2. **Statements :** All teachers are readers.
   All teachers are writers.
   This pair is not properly aligned because the subject of both the sentences is 'teachers'. Since both the sentences are of type - A, we may convert any of them. So the aligned pair is
   Some readers are teachers.
   All teachers are writers.
   Here the conclusion will be of type - I because I+A=I.
   ∴ The conclusion is Some readers are writers.

3. **Statements :** Some chocolates are toffees.
   All chocolates are pastries.
   The subject of both the sentences is the same. By the rule of IEA, we convert the I - type statement.
   So the aligned pair is,
   Some toffees are chocolates.
   All chocolates are pastries
   I+A=I. So the conclusion is
   Some toffees are pastries.

4. **Statements :** All lights are balls
   No bats are lights
   By changing the order of the statements itself we can align the sentences. The aligned pair is
   No bats are lights.
   All lights are balls.
   E+A=O*. So the conclusion is,
   Some balls are not bats.

5. **Statements :** Some caps are red.
   No clip is red.
   Here the common term is 'red' which is the predicate of both the sentences. By the rule of IEA, we convert the I - type statement. After conversion, the given pair becomes,
   Some red are caps.
   No clip is red.
   Now by changing the order of the statements, we can align the sentences. So the aligned pair is,
   No clip is red.
   Some red are caps.
   The conclusion is of type O* since E+I=O*. Hence the conclusion is
   Some caps are not clips.

6. **Statements :** Some powders are not soaps.
   All soaps are detergents.
   The given pair is properly aligned. But no definite conclusion can be drawn from this type because it is a O+A - type combination.

**IMMEDIATE INference**

Now let us consider an example which has two statements as well as two conclusions.

eg. **Statements :** All novels are stories.
   All stories are songs.
   Conclusion : (i) All novels are songs.
   (ii) Some songs are novels.

First of all let us consider only the statements. The sentences are already aligned. Since A+A = A, the conclusion will be All novels are songs. If we convert this conclusion, we get Some songs are novels. Hence both the conclusions given in the question are true.

eg: **Statements :** Some roses are leaves.
   Some leaves are throns.
Conclusions:  
(i) Some roses are thorns.  
(II) Some leaves are roses.

We know that for a combination of I+I - type no conclusion could be drawn. But if we convert the first statement, we get Some leaves are roses. Which is conclusion (ii) Also on converting the second statement, we get some thorns are leaves. This proposition is not given in the conclusion part. So in this example, conclusion (ii) alone is true.

So while solving the problems on syllogism, we should also take the immediate inferences of the given statements as well as the immediate inference of the conclusion drawn from the table.

COMPLEMENTARY PAIR

Consider the following.

Conclusions: i) Some buses are trucks.  
ii) Some buses are not trucks.

We know that either some buses will be trucks or some buses will not be trucks. Hence either (i) or (ii) is true. Such pair of statements are called complementary pairs. So in a complementary pair, at least one of the two statements is always true. We can call a pair as a complementary pair if

i) The subject and predicate of both the sentences are the same.
ii) They are an I + O - type pair or an A + O type pair or an I + E - type pair.

Some complementary pairs are given below.

i) All birds are swans.  
  Some birds are not swans.
ii) Some tables are watches.  
  Some tables are not watches.
iii) Some girls are cute.  
  No girls are cute.

Note: The steps to be followed to do a syllogism problem by analytical method are mentioned below.

i) Align the sentences properly  
ii) Draw conclusion using the table  
iii) Check for immediate inferences.  
iv) Check for complementary pair if steps ii and iii fail.

SOLVED EXAMPLES

1. Statement: No rooms are stones  
   Some houses are rooms.

Conclusions: i) Some houses are stones  
   ii) Some houses are not stones.

We can easily align the statements by changing the order of the sentences. The aligned pair is:

Some houses are rooms.  
No rooms are stones.

I + E = O. So the conclusion is Some houses are not stones. Hence we obtain a definite conclusion that conclusion (ii) is correct. Hence step IV becomes unnecessary.

2. Statements: Some cows are horses  
   All cows are tigers.

Conclusions: i) Some tigers are horses.  
   ii) Some tigers are cows.

To align the sentences, it is sufficient to convert the first statement. So the aligned pair is:

Some horses are cows.  
All cows are tigers.

I + A = I. Hence the conclusion will be Some horses are tigers. If we convert this conclusion, we get Some tigers are horses which is conclusion (i). Also if we convert the second statement, conclusion (ii) is obtained.

Hence both the conclusions given above should be taken as true. There is no need to check for complementary pair because definite conclusion has already been obtained.

3. Statements: Some poets are teachers.  
   Some teachers are saints

Conclusions: i) Some poets are saints.  
   ii) Some poets are not saints.

This pair is already aligned. But there is
no definite conclusion for I + I type combinations. Also none of the given conclusions is the immediate inference of any of the statements. So let us check for the complementary pair. The conclusions given are in the form of 'some' and 'some not'. Hence either conclusion (i) or (ii) follows.

**THREE - STATEMENT SYLLOGISM**

This type of syllogism problems consist of 3 statements which are followed by 4 or more conclusions.

A typical three - statement syllogism problem is given below.

**Directions** : Below are given three statements followed by several conclusions based on them. Examine the conclusions and decide whether they logically follow from the given statements. You have to take the given statements as true even if they appear to be at variance with commonly known facts.

**Statements** :
A) All bags are hats.
B) Some pins are bags.
C) No hats are needles.

**Conclusions** :
I) Some pins are hats.
II) No needles are bags.
III) Some pins are needles.
IV) Some pins are not needles.

1) Only I and II follow
2) Only I and IV follow
3) I, II and IV follow
4) Either III or IV, and I follow
5) Either III or IV and I and II follow.

Before solving this example, let us see the steps in solving a three-statement syllogism problems.

**Step I**

i) Consider a given conclusion.
ii) Note the subject and predicate of this given conclusion.
iii) Now find which of the two given statements has this subject and predicate.

iv) a) If there is a common term between the two statements chosen in the previous part, then consider only these two statements.

b) If there is no common term between the two statements chosen in the previous part, then we should consider all the three statements.

**Step II**

i) If two statements are relevant for a given conclusion, align them.
ii) If three statements are relevant, write them as a chain. That is, align them in such a way that the predicate of the first sentence and subject of the second are the same, and the predicate of the second sentence and the subject of the third sentence are the same.
iii) Now arrive at the conclusion using the table.
iv) Now compare the given conclusion with the conclusion drawn using the tables. If they match, the given conclusion is true. If they do not match, it is false.

**Step III**

i) If a given statement has already been marked as a valid conclusion after step II, then leave it. Otherwise check if it is an immediate inference of any of the three given statements of the conclusion derived.

ii) Search for complementary pair :

a) Check if any two given conclusions have the same subject and the same predicate.

b) If (a) is satisfied, then check whether any of them has been marked as a valid conclusion after step II or as an immediate inference.

c) If none of them has been marked as a valid conclusion, then they will form a complementary pair if they are an A - O or I - O or I - E pair.

d) If they do make a complementary pair,
then mark the choice "either of the two follows".

If a conclusion is marked as a valid conclusion after step II, then it is not necessary to perform step III (i). Again if a given conclusion has already been accepted in step III (i), then it is not necessary to perform step III (ii).

The learner should understand these steps clearly. Now follow the solution to the example which is already given. Here we have to check the validity of each and every conclusion one by one.

**Conclusion I**: Here the subject is pin and the predicate is hat. So let us consider (A) and (B) as our relevant statements because they have a common term 'bags'.

The second step is to align the sentences. The aligned pair is,

Some pins are bags.
All bags are hats.

I + A = I. So we arrive at the conclusion, 'Some pins are hats'. So conclusion I is valid.

**Conclusion II**: Here the subject is 'needles' and the predicate is 'bags'. Statement C contains the subject 'Needles'. But 'bags' appears in both A and B. We should select A because there is a common term between A and C. This is an aligned pair and so we arrive at the conclusion No bags are needles which implies No needles are bags. Hence conclusion II is valid.

**Conclusion III**: Here the subject is 'pins' and the predicate is 'needles'. These words appear in statements (B) and (C) respectively which have no term in common. So all the three statements should be taken as relevant. Now align the statements as Step II (ii) So we get,

Some pins are bags
All bags are hats.

I + A + E = (I + A) + E = I + E = O.

So the conclusion is 'Some pins are not needles', which is conclusion IV. So conclusion IV is valid.

Since conclusion III is not valid in step II, let us perform step III (i). The conclusion, Some pins are not needles is not an immediate inference of any of the three given statements. So the next step is to check the existence of a complementary pair in the given conclusions.

We see that conclusion III and conclusion IV form a complementary pair of I - O type. So the choice "either III or IV follows" could be selected. But we find that conclusion IV is valid from the previous step. So conclusion III is not valid. Hence for this given example, the third choice which is 'I, II and IV follow' is true.

**PRACTICE TEST**

Directions (Q. 1-71): In each question below there are three statements followed by four conclusions numbered, I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts.

1. **Statements:**
   a. No Cloud is Bird.
   b. Some Goats are Birds.
   c. All Cars are Goats.

   **Conclusions:**
   I. No Car is Cloud.
   II. Some Cars are Birds.
   III. No Bird is Car.
   IV. Some Clouds are Goats.

   1) Only III follows
   2) Only either II or III follows
   3) Only I follows
   4) Only I and either II or III follow
   5) None of these

2. **Statements:**
   a. All Grapes are Bananas.
   b. All Potatoes are Bananas.
   c. Some Bananas are Mangoes.
Conclusions:
I. No Grape is Mango.
II. Some Potatoes are not Mangoes.
III. Some Grapes are Potatoes.
IV. All Mangoes are Grapes.
1) Only I follows
2) Either I or III follows
3) Only II & III follow
4) Only I, II & III follow
5) None of these

3. Statements:
a. Some Cats are Rats.
b. Some Rats are Ants.
c. Some Ants are Flies.
Conclusions:
I. Some Flies are Cats.
II. Some Flies are not Ants.
III. No Rat is Fly.
IV. No Cat is Fly.
1) Only I & IV follow
2) Only II follows
3) Only I & III follow
4) Only I or IV follows
5) None of these

4. Statements:
a. All Chalks are Dusters
b. Some Chalks are Boards.
c. Some Dusters are Pens.
Conclusions:
I. Some Pens are Chalks.
II. Some Dusters are Boards.
III. Some Pens are Boards.
IV. All Chalks are Pens.
1) Either I or IV follows
2) Only II & III follow
3) Either I or IV & II follow
4) Only II follows
5) None of these

5. Statements:
a. Some Bags are Books.
b. All Books are Boxes.
c. No Box is Board.
Conclusions:
I. Some Bags are not Boards.
II. Some Bags are not Books.
III. All Bags are Boxes.
IV. No Bag is Board.
1) Only I follows
2) I & either II or III follow
3) Only IV follows
4) Only II follows
5) None of these

6. Statements:
Some streets are roads.
Some roads are lanes.
Some lanes are highways.
Conclusions:
I. Some roads are not streets.
II. No highway is street.
III. Some streets are not roads.
IV. Some lanes are not roads.
1) Only III follows
2) Only IV and III follow
3) Either I or III follows
4) Both I and III follow
5) None of these

7. Statements:
Some pencils are pens.
All pens are erasers.
All staplers are erasers.
Conclusions:
I. Some pens are not pencils.
II. All erasers are pencils.
III. Some staplers are pens.
IV. Some staplers are pencils.
1) Only I follows
2) Only IV follows
3) Only III follows
4) Only IV follows
5) None of these

8. Statements:
Some tables are chairs.
No cupboard is table.
Some chairs are cupboards.
Conclusions:
I. Some chairs are not tables.
II. All chairs are either tables or cupboard.
III. Some chairs are both tables and cupboards.
IV. All chairs are tables.
1) Only I and IV follow
2) Only either II or III follow
3) Only IV follows
4) Either II or III & I follow
5) None of these
9. **Statements:**
   All birds are animals.
   Some animals are humans.
   All humans are mammals.

**Conclusions:**
- I. Some humans are not birds.
- II. Some birds are humans.
- III. Some animals are not mammals.
- IV. All animals are mammals.

1) Only I and II follow
2) Either III or IV follows
3) Either I or II follows
4) Either I or II and either III or IV follow
5) None of these

10. **Statements:**
    Some leaves are fruits.
    All branches are fruits.
    Some roots are branches.

**Conclusions:**
- I. Some roots are fruits.
- II. Some branches are leaves.
- III. No leaf is branch.
- IV. Some leaves are roots.

1) Either II or III and I follow
2) Only I follows
3) Only either II or III follows
4) Only I and III follow
5) None of these

11. **Statements:**
    All books are notes.
    Some notes are pencils.
    No pencil is paper.

**Conclusions:**
- I. Some notes are books.
- II. Some pencils are books.
- III. Some books are papers.
- IV. No book is a paper.

1) Only I follows
2) Only I and either III or IV follow
3) Either III or IV follows
4) Only I and III follow
5) None of these

12. **Statements:**
    Some cups are utensils.
    No utensil is a bucket.
    All buckets are plates.

**Conclusions:**
- I. Some cups are buckets.
- II. Some utensils are plates.
- III. No utensil is a plate.
- IV. Some cups are plates.

1) Only I follows
2) Only III follows
3) Either II or III follows
4) Either III or IV follows
5) None of these

13. **Statements:**
    Some keys are locks.
    All locks are doors.
    Some doors are windows.

**Conclusions:**
- I. Some locks are windows.
- II. Some windows are doors.
- III. Some windows are doors.
- IV. No window is a lock.

1) Either I or IV follows
2) Only II follows
3) Only III and IV follow
4) None follows
5) None of these

14. **Statements:**
    All pins are staplers.
    Some staplers are sharpeners.
    Some sharpeners are stands.

**Conclusions:**
- I. Some staplers are stands.
- II. Some sharpeners are pins.
- III. Some pins are stands.
- IV. Some stands are sharpeners.

1) Only I and II follow
2) Only II and IV follow
3) Only III follows
4) Only IV follows
5) None of these
15. **Statements:**
   Some oranges are apples.
   All apples are guavas.
   No guava is a banana.

   **Conclusions:**
   I. Some guavas are oranges.
   II. No apple is a banana.
   III. Some oranges are bananas.
   IV. Some apples are bananas.
   1) Only I and II follow
   2) Only I and either II or IV follow
   3) Only I, II and IV follow
   4) Only III and either II or IV follow
   5) None of these

16. **Statements:**
   Some spectacles are boxes.
   No bat is a ball.
   Some boxes are balls.

   **Conclusions:**
   I. Some boxes are not bats.
   II. Some bats are spectacles.
   III. No bat is a box.
   IV. No ball is a spectacle.
   1) Only I follows
   2) Only I & III follow
   3) Only II and III follow
   4) Only IV follows
   5) None of these

17. **Statements:**
   All fans are tubelights.
   No pen is a bulb.
   Some bulbs are fans.

   **Conclusions:**
   I. Some pens are tubelights.
   II. No pens are tubelights.
   III. Some tubelights are fans.
   IV. All tubelights are fans.
   1) Only I and II follow
   2) Only I, II and III follow
   3) Either I or II and III follow
   4) Only III and IV follow
   5) None of these

18. **Statements:**
   Some fruits are vegetables.
   All liquids are drinks.
   All drinks are fruits.

   **Conclusions:**
   I. Some drinks are vegetables.
   II. Some fruits are liquids.
   III. All liquids are fruits.
   IV. No liquids are vegetables.
   1) Only I and II follow
   2) Only II and III follow
   3) Only III and IV follow
   4) Only I, II & III follow
   5) None of these

19. **Statements:**
   All shirts are trousers.
   Some socks are shoes.
   All shoes are shirts.

   **Conclusions:**
   I. Some socks are shirts.
   II. Some socks are trousers.
   III. All shoes are trousers.
   IV. All shoes are socks.
   1) Only I follows
   2) Only II and III follow
   3) Only I or II or III follows
   4) Only III and IV follow
   5) None of these

20. **Statements:**
   Some books are papers.
   All plates are records.
   Some records are books.

   **Conclusions:**
   I. Some plates are books.
   II. Some records are papers.
   III. Some papers are plates.
   IV. Some books are records.
   1) Only I follows
   2) Only II and III follow
   3) Either I or II and III follow
   4) Only III and IV follow
   5) None of these
21. **Statements:**
   Some ice are ring.
   No ring is paint.
   Some rings are gold.

**Conclusions:**
I. No gold is paint.
II. No ice is gold.
III. Some rings are paints.
IV. All golds are rings.
1) Only I and III follow
2) Only I and II follow
3) Only I and IV follow
4) Only II and III follow
5) None of these

22. **Statements:**
   All gates are flowers.
   Some gates are fruits.
   Some flowers are clips.

**Conclusions:**
I. Some flowers are fruits.
II. Some clips are fruits.
III. Some clips are gates.
IV. No flower is fruit.
1) Only I follows
2) Only I and IV follow
3) Only II and IV follow
4) Only I and III follow
5) None of these

23. **Statements:**
   No candle is bell.
   Some shoes are bells.
   All tables are shoes.

**Conclusions:**
I. Some tables are bells.
II. No table is bell.
III. Some shoes are candles.
IV. No shoe is a candle.
1) Only I and IV follow
2) Only I and II follow
3) Only III and IV follow
4) Only II and IV follow
5) None of these

24. **Statements:**
   Some films are clouds.
   All rats are clouds.
   Some clouds are chairs.

**Conclusions:**
I. No film is chair.
II. Some rats are films.
III. Some clouds are rats.
IV. Some chairs are rats.
1) Only I and III follow
2) Either II or IV follows
3) No conclusion follows
4) Only IV follows
5) None of these

25. **Statements:**
   Some cups are slates.
   All slates are apples.
   No apple is a car.

**Conclusions:**
I. Some cars are slates.
II. Some cups are cars.
III. Some apples are cups.
IV. No car is a cup.
1) Only II follows
2) Only III follows
3) Only IV follows
4) Either II or IV & III follow
5) None of these

26. **Statements:**
   All buds are bells.
   Some buds are cakes.
   Some bells are sponges.

**Conclusions:**
I. Some cakes are sponges.
II. Some bells are buds.
III. Some sponges are not cakes.
IV. Some bells are not sponges.
1) Only either I or III and II follow
2) Only II and III follow
3) Only I and IV follow
4) Only either I or IV and II follow
5) None of these
27. **Statements:**
   No machine is a fly.
   Some flies are colours.
   All colours are sweets.

**Conclusions:**
I. Some machines are colours.
II. All sweets are colours.
III. Some sweets are flies.
IV. No sweet is a machine.
   1) Only either II or IV and III follow
   2) Only I and II follow
   3) Only IV follows
   4) Only III follows
   5) None of these

28. **Statements:**
   Some kings are cars.
   Some cars are bottles.
   No bottle is a lemon.

**Conclusions:**
I. Some cars are lemons.
II. No king is a lemon.
III. Some kings are bottles.
IV. All cars are either kings or bottles.
   1) Only I and II follow
   2) Only either 1 or II and III follow
   3) Only III or IV follows
   4) Only IV follows
   5) None of these

29. **Statements:**
   Some goats are hammers.
   All hammers are diamonds.
   No diamond is green.

**Conclusions:**
I. No goat is green.
II. Some diamonds are hammers.
III. Some goats are diamonds.
IV. Some greens are hammers.
   1) Only I and IV follow
   2) Only II and IV follow
   3) Only II and III follow
   4) Only either II or III and I follow
   5) None of these

30. **Statements:**
   Some cars are mopeds.
   Some mopeds are hills.
   All pencils are mopeds.

**Conclusions:**
I. All pencils are hills.
II. Some pencils are cars.
III. Some cars are hills.
IV. Some pencils are not cars.
   1) Only I follows
   2) Only either II or IV follows
   3) Only I or III follows
   4) Only I and IV follow
   5) None of these

31. **Statement:**
   Some pages are papers.
   Some papers are magazines.
   All magazines are books.

**Conclusions:**
I. Some books are magazines.
II. Some books are papers.
III. Some magazines are pages.
IV. Some pages are magazines.
   1) All follow
   2) Only I and III follow
   3) Only II and IV follow
   4) Only I and IV follow
   5) None of these

32. **Statements:**
   All windows are doors.
   No door is a lock.
   Some locks are keys.

**Conclusions:**
I. Some locks are doors.
II. Some locks are not doors.
III. Some keys are not doors.
IV. All doors are windows.
   1) All follow
   2) Only either I or II follows
   3) Only either I or II and III follow
   4) None follows
   5) None of these

33. **Statements:**
   Some shirts are coats.
   All coats are jackets.
   Some jackets are trousers.
Conclusions:
I. Some shirts are jackets.
II. Some jackets are shirts.
III. All trousers are jackets.
IV. Some trousers are jackets.
1) All follow
2) Only I, II and III follow
3) Only I, II and IV follow
4) Only II, III and IV follow
5) None of these

34. Statements:
All bikes are scooters.
All scooters are scooties.
All scooties are mopeds.
Conclusions:
I. All mopeds are scooties.
II. All scooties are scooters.
III. All scooters are bikes.
IV. All bikes are mopeds.
1) None follows
2) All follow
3) Only III and IV follow
4) Only IV follows
5) None of these

35. Statements:
Some pots are buckets.
Some buckets are bags.
Some bags are purses.
Conclusions:
I. Some purses are buckets.
II. Some bags are pots.
III. Some purses are pots.
IV. Some pots are bags.
1) All follow
2) None follows
3) Only I and III follow
4) Only II and IV follow
5) None of these

36. Statements:
All biscuits are chocolates.
Some chocolates are breads.
All breads are pastries.
Conclusions:
I. Some biscuits are pastries.
II. Some pastries are chocolates.
III. Some biscuits are not pastries.
IV. All pastries are breads.
1) Only I and II follow
2) Only I, II and III follow
3) Only either I or III and II follow
4) Only either I or III and IV follow
5) None of these

37. Statements:
All glasses are roads.
No road is a stick.
Some sticks are pens.
Conclusions:
I. Some glasses are sticks.
II. Some pens are sticks.
III. Some roads are sticks.
IV. No glass is a stick.
1) None follows
2) All follow
3) Only I or IV and II follow
4) Only IV follows
5) None of these

38. Statements:
Some lions are goats.
Some goats are horses.
Some horses are flowers.
Conclusions:
I. Some lions are horses.
II. Some goats are flowers.
III. Some lions are flowers.
IV. Some horses are lions.
1) None follows
2) All follow
3) Only I and IV follow
4) Only II and III follow
5) None of these

39. Statements:
All trees are books.
Some books are tables.
All tables are pencils.
Conclusions:
I. Some pencils are tables.
II. Some books are trees.
III. Some tables are trees.
IV. Some pencils are trees.
1) None follows  
2) All follow
3) Only either I or III follows
4) Only either I or II follows
5) None of these

40. **Statements:**
   Some doors are windows.
   All windows are dogs.
   Some dogs are cats.

   **Conclusions:**
   I. Some dogs are doors.  
   II. All dogs are doors.  
   III. Some cats are windows. 
   IV. Some dogs are windows.
   1) Only I and II follow  
   2) Only II and III follow 
   3) Only I and IV follow 
   4) All follow 
   5) None of these

41. **Statements:**
   All buses are trains.
   All trains are rickshaws.
   All rickshaws are cycles.

   **Conclusions:**
   I. All cycles are buses. 
   II. All rickshaws are buses. 
   III. All buses are rickshaws. 
   IV. All trains are cycles.
   1) All follow  
   2) None follows 
   3) Only I and II follow 
   4) Only II and III follow 
   5) None of these

42. **Statements:**
   Some bricks are trees.
   All trees are pens.
   All pens are boats.

   **Conclusions:**
   I. Some boats are bricks 
   II. Some pens are bricks 
   III. Some trees are bricks 
   IV. Some bricks are boats
   1) None follows  
   2) All follow 
   3) Only I and II follow 
   4) Only III and IV follow 
   5) None of these

43. **Statements:**
   All cups are tables.
   No table is water.
   Some waters are clothes.

   **Conclusions:**
   I. No cloth is cup. 
   II. No cloth is table. 
   III. Some clothes are waters. 
   IV. Some waters are cups.
   1) None follows 
   2) All follow 
   3) Only III follows 
   4) Only I and II follow 
   5) None of these

44. **Statements:**
   Some flowers are rods.
   Some rods are doors.
   Some doors are houses.

   **Conclusions:**
   I. Some houses are flowers.
   II. Some doors are flowers. 
   III. Some flowers are doors. 
   IV. No house is flower.
   1) Only I and IV follow 
   2) Only II and III follow 
   3) Only either I or II follows 
   4) Only either I or IV follows 
   5) None of these

45. **Statements:**
   All trucks are vans.
   All vans are cars.
   All cars are trains.

   **Conclusions:**
   I. All trains are trucks.
   II. All cars are trucks. 
   III. All trucks are trains. 
   IV. All vans are trains.
   1) All follow  
   2) Only I and II follow  
   3) Only II and III follow  
   4) Only II and IV follow  
   5) None of these

46. **Statements:**
   No table is fruit.
   No fruit is window.
   All windows are chairs.
Conclusions:
I. No window is table.
II. No chair is fruit.
III. No chair is table.
IV. All chairs are windows.
1) None follows 2) All follow
3) Only I and II follow 4) Only III & IV follow
5) None of these

47. Statements:
All birds are fruits.
Some fruits are towers.
All towers are windows.
Conclusions:
I. Some birds are towers.
II. Some windows are birds.
III. Some windows are fruits.
IV. Some towers are birds.
1) None follows 2) Only I and II follow
3) Only II and III follow 4) Only III follows
5) All follow

48. Statements:
Some buses are trains.
No train is a dog.
All dogs are parrots.
Conclusions:
I. No bus is a parrot.
II. Some parrots are trains.
III. Some parrots are buses.
IV. No dog is a bus.
1) Only either I or III follows
2) Only II follows 3) Only IV follows
4) Only I and III follow 5) None of these

49. Statements:
Some cups are flowers.
Some flowers are boxes.
All boxes are tigers.
Conclusions:
I. Some tigers are cups.
II. Some tigers are flowers.
III. Some boxes are cups.
IV. No tiger is a flower.
1) None follows
2) Only either II or IV follows
3) Only III follows
4) Only either I or III follows
5) None of these

50. Statements:
Some cats are lions.
All lions are hares.
All hares are horses.
Conclusions:
I. Some cats are horses.
II. Some horses are lions.
III. Some hares are cats.
IV. Some cats are hares.
1) Only I and II follow
2) Only III and IV follow
3) Only I and III follow
4) All follow
5) None of these

51. Statements:
All boats are rivers.
All rivers are mangoes.
All mangoes are apples.
Conclusions:
I. All apples are boats.
II. All mangoes are boats.
III. All rivers are apples.
IV. All boats are apples.
1) All follow
2) Only I and II follow
3) Only I, III and IV follow
4) Only II, III and IV follow
5) None of these

52. Statements:
  a. Some boxes are trees.
  b. Some trees are horses.
  c. All horses are fruits.
Conclusions:
I. Some fruits are boxes.
II. Some fruits are trees.
III. Some horses are trees.
IV. No fruits are boxes.
1) None follows  
2) Only either II or IV follows  
3) Only either I or IV and II follow  
4) Only either I or III and IV follow  
5) None of these

53. **Statements:**
   a. All flowers are buses.  
   b. Some buses are cats.  
   c. All cats are tigers.  
**Conclusions:**
   I. Some tigers are buses.  
   II. Some tigers are flowers.  
   III. Some cats are flowers.  
   IV. Some buses are tigers.  
   1) None follows  
   2) Only I and II follow  
   3) Only III and IV follow  
   4) Only I and IV follow  
   5) Only II and III follow

54. **Statements:**
   a. All fans are rooms.  
   b. No room is green.  
   c. Some windows are green.  
**Conclusions:**
   I. Some windows are fans.  
   II. Some windows are rooms.  
   III. Some fans are green.  
   IV. No green is fan.  
   1) Only I follows  
   2) Only III follows  
   3) Only IV follows  
   4) Only II & IV follow  
   5) All follow

55. **Statements:**
   a. Some tablets are rains.  
   b. All dogs are rains.  
   c. All rains are chairs.  
**Conclusions:**
   I. Some chairs are tablets.  
   II. All dogs are chairs.  
   III. Some tablets are dogs.  
   IV. Some tablets are chairs.  
   1) All follow  
   2) Only I, II&III follow  
   3) Only II, III and IV follow  
   4) Only III & IV follow  
   5) None of these

56. **Statements:**
   a. No man is sky.  
   b. No sky is road.  
   c. Some men are roads.  
**Conclusions:**
   I. No road is man.  
   II. No road is sky.  
   III. Some skies are men.  
   IV. All roads are men.  
   1) None follows  
   2) Only I follows  
   3) Only 1 and III follow  
   4) Only II & III follow  
   5) None of these

57. **Statements:**
   a. Some candles are houses.  
   b. Some houses are trains.  
   c. Some trains are roads.  
**Conclusions:**
   I. Some roads are candles.  
   II. Some trains are candles.  
   III. Some roads are houses.  
   IV. Some candles are roads.  
   1) None follows  
   2) All follow  
   3) Only I and II follow  
   4) Only II & III follow  
   5) Only III and IV follow

58. **Statements:**
   a. No tree is fruit.  
   b. All fruits are stones.  
   c. All stones are rains.  
**Conclusions:**
   I. No stone is tree.  
   II. No rain is tree.  
   III. Some rains are fruits.  
   IV. Some rains are trees.  
   1) None follows  
   2) Only either II or IV and III follow  
   3) Only either II or III and I follow  
   4) All follow  
   5) None of these

59. **Statements:**
   a. All books are stars.  
   b. Some stars are windows.  
   c. All windows are hills.  
**Conclusions:**
   I. Some windows are books.  
   II. Some hills are stars.  
   III. Some hills are books.  
   IV. Some stars are books.
60. **Statements:**
   a. Some cats are rats,
   b. All rats are bats,
   c. Some bats are jungles.

**Conclusions:**
I. Some jungles are cats.
II. Some bats are cats.
III. Some jungles are rats.
IV. No jungles is cat.
1) None follows
2) Only III follows
3) Only either I or IV and III follow
4) Only either I or IV and II follow
5) None of these

61. **Statements:**
   a. All flowers are clouds.
   b. No clouds is sky
   c. All skies are tigers.

**Conclusions:**
I. Some clouds are flowers.
II. All clouds are flowers.
III. Some tigers are skies.
IV. All tigers are skies.
1) None follows
2) Only III follows
3) Only either I or IV and III follow
4) Only either I or IV and II follow
5) None of these

62. **Statements:**
   a. Some dogs are rats.
   b. All rats are trees.
   c. Some trees are not dogs.

**Conclusions:**
I. Some trees are dogs.
II. All dogs are trees.
III. All rats are dogs.
IV. All trees are dogs.
1) None follows
2) Only I follows
3) Only I and II follow
4) Only II & III follow
5) All follow

63. **Statements:**
   a. Some boys are rains.
   b. All rains are clouds.
   c. Some clouds are cars.

**Conclusions:**
I. Some clouds are boys.
II. Some cars are boys.
III. Some cars are rains.
IV. Some rains are boys.
1) None follows
2) Only IV follows
3) Only I follows
4) Both I & IV follow
5) All follow

64. **Statements:**
   a. All bricks are flowers.
   b. Some houses are flowers.
   c. All pens are houses.

**Conclusions:**
I. Some houses are bricks.
II. Some pens are flowers.
III. Some flowers are bricks.
IV. No pen is flower.
1) Only either II or IV and III follow
2) Only either II or IV and I follow
3) Only either I or II and IV follow
4) None follows
5) All follow

65. **Statements:**
   a. All lions are ducks.
   b. No duck is a horse.
   c. All horses are fruits.

**Conclusions:**
I. No lion is a horse.
II. Some fruits are horses.
III. Some ducks are lions.
IV. Some lions are horses.
1) All follows
2) Only either I or II and both III and IV follow
3) Only either I or IV and both II and III follow
4) Only either I or IV and II follow
5) None of these

66. **Statements:**
   a. Some mountains are rivers.
   b. Some rivers are roads.
   c. Some roads are windows.
Conclusions:
I. Some windows are roads.
II. Some rivers are mountains.
III. Some roads are mountains.
IV. Some windows are rivers.
1) All follow 2) Only I and II follow
3) Only III and IV follow 4) Only I & IV follow
5) None follows

Statements:
a. All benches are trees.
b. All trees are flowers.
c. All flowers are fruits.

Conclusions:
I. All fruits are benches.
II. All trees are fruits.
III. Some fruits are flowers.
IV. Some flowers are benches.
1) All follow 2) Only II, III & IV follow
3) Only III and IV follow 4) Only II & III follow
5) None of these

Statements:
a. Some trains are radios.
b. Some radios are waters.
c. All tigers are waters.

Conclusions:
I. Some trains are tigers.
II. Some trains are waters.
III. No water is train.
IV. All waters are tigers.
1) None follows 2) Both II & III follow
3) Only either II or III follows 4) Only either I or II follows
5) Only either I or IV follows

Statements:
a. Some buses are rivers.
b. All rivers are mountains.
c. Some roads are mountains.

Conclusions:
I. Some mountains are buses.
II. Some roads are buses.
III. Some roads are rivers.
IV. Some mountains are roads.
1) None follows 2) Only I and II follow
3) Only III and IV follow 4) Only I & IV follow
5) All follow

Statements:
a. All lions are jungles.
b. Some jungles are rabbits.
c. All rabbits are elephants.

Conclusions:
I. Some rabbits are lions.
II. Some elephants are jungles.
III. Some elephants are lions.
IV. Some elephants are rabbits.
1) Only I and III follow 2) Only I and II follow
3) Only II and III follow 4) Only III & IV follow
5) None of these

Statements:
a. All books are pens.
b. No pens are houses.
c. All houses are doors.

Conclusions:
I. No books are houses.
II. No books are doors.
III. Some doors are pens.
IV. Some houses are books.
1) Only I follows 2) Only I and II follow
3) Only II and III follow 4) Only III & IV follow
5) None of these

Directions (Q. 72-76): In each question below are given two statements followed by two conclusions numbered I and II. You have take the two given statements to be true even if they seem to be at variance with commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts. Give answer
1) If only conclusion 1 follows.
2) If only conclusion II follows.
3) If either 1 or II follows.
4) If neither I nor II follows.
5) If both I and II follow.
72. **Statements:**
   All leaders are good team workers.
   All good team workers are good orators.

   **Conclusions:**
   I. Some good team workers are leaders.
   II. All good orators are leaders.

73. **Statements:**
   All terrorists are human.
   All humans are bad.

   **Conclusions:**
   I. All terrorists are bad.
   II. No human can be a terrorist.

74. **Statements:**
   Some teachers are followers.
   Some followers are famous.

   **Conclusions:**
   I. Some teachers are famous.
   II. Some followers are teachers.

75. **Statements:**
   Ship was overturned.
   Captain was not traced.

   **Conclusions:**
   I. Captain died in the accident.
   II. Captain is alive.

76. **Statements:**
   Some dedicated souls are angels.
   All social workers are angels.

   **Conclusions:**
   I. Some dedicated souls are social workers.
   II. Some social workers are dedicated souls.

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**ANSWERS AND EXPLANATIONS**

1.2; 2.5; 3.5; 4.4; 5.2; 6.5; 7.5; 8.5; 9.4; 10.1; 11.2; 12.3; 13.5; 14.4; 15.1; 16.1

1. All statements are I-type. Hence, no conclusion is possible with the combination of any two. And none of the conclusions follows from the conversion of any statement. Nor there is any complementary (I-O) pair.

2. Some pencils are pens + All pens are erasers = Some pencils are erasers. On conversion, we get Some erasers are pencils. Hence II does not follow. I does not follow from Some pencils are pen. Again, Some pencils are erasers + Some erasers are staplers (conversion of last statement). No conclusion can be derived. Hence IV does not follow. III does not follow from the last two statements.

3. Only III follows from the last statement and the conversion of first statement.

4. None of the conclusions follows. But conclusion I and converted conclusion II make complementary pair. Similarly conclusion III and converted conclusion IV make complementary pair.

5. Some roots are branches + All branches are fruits = Some roots are fruits. Hence I follows. Again II and converted III make a complementary pair.

6. I follows by converting the first statement. Some notes are pencils (I) → conversion → Some pencils are notes (I) + Some notes are books = I + I = No conclusion. Hence II does not follow. Since III and IV form a complementary I-E pair, either of the two must follow.

7. Some cups are utensils + No utensil is a bucket = Some cups are not buckets [I + E = O]. Hence I.

8. Only III follows from the last statement and the conversion of first statement.

9. None of the conclusions follows. But conclusion I and converted conclusion II make complementary pair. Similarly conclusion III and converted conclusion IV make complementary pair.

10. Some roots are branches + All branches are fruits = Some roots are fruits. Hence I follows. Again II and converted III make a complementary pair.

11. I follows by converting the first statement. Some notes are pencils (I) → conversion → Some pencils are notes (I) + Some notes are books = I + I = No conclusion. Hence II does not follow. Since III and IV form a complementary I-E pair, either of the two must follow.

12. Some cups are utensils + No utensil is a bucket = Some cups are not buckets. Hence I does not follow. No utensil is a bucket + All buckets are plates = E + A = O* = Some plates are not utensils. Hence neither II nor III follows. But since they form an I-E complementary pair, either of the two must follow. IV can’t be established.

13. Some boxes are balls + No ball is a bat (conversion of 2nd statement) = Some boxes are not bats [I + E = O]. Hence I.
follows and III does not. Now, Some spectacles are boxes and conclusion I give no conclusion. Hence II and IV do not follow.

17.3; Some bulbs are fans + All fans are tube lights = Some bulbs are tube lights. (a) [I + A = I]. Now, statement (2) + (a) gives: Some tube lights are not pens. Hence conclusions I and II can’t be established. III follows from first statement on conversion. But IV does not. But I and II make a complementary pair [I-E pair]. Hence either I or II follows.

18.2 19.5
20.4; Only IV follows from statement (3) on conversion.

21.5; Converted (c) + (b) gives: Some golds are not paints [I + E = O]. Hence I does not follow, (a) + (c) gives no conclusion. Hence II does not follow. III and IV do not follow from (b) and (c) respectively.

22.1; Converted (b) + (a) gives: Some fruits are flowers... (A). On conversion, we get I. Hence I follows and IV does not follow from (b) and (c) respectively.

26.1; First statement, on conversion, gives conclusion II. I and III do not follow from the rules of syllogism but they are complementary pair. Hence either I or III follows. IV does not follow from the last statement.

27.4; No machine is a fly + Some flies are colours = Some colours are not machines [E + I = O*]. Hence I does not follow. II does not follow from the last statement. Some flies are colours + All colours are sweets = Some flies are sweets, which on conversion gives conclusion III. IV also does not follow.

28.5; Combining the last two statements, we get Some cars are not lemons. Hence I does not follow. II and III do not follow from the given statements. As, Some cars may be lemons or something else, hence IV does not follow.

29.3; 1st statement + 2nd statement gives: Some goats are diamonds. Hence III follows. III + last statement gives: Some goats are not green. Hence I does not follow. Conversion of second statement gives II. IV does not follow because of the last two statements.

30.2; No conclusion follows from the rules of syllogism. But II and IV make a complementary pair. Hence either II or IV follows.

31.5; Some pages are papers + Some papers are magazines = no conclusion. Hence IV and III do not follow. In all the given options either III or IV is present. So, we do not go further and choose (5) as our answer.

32. 5; No door is a lock → on conversion → No lock is a door → implication → Some locks are not doors. Hence II follows and I does not. No door is a lock + Some locks are keys = Some keys are not doors. Hence III follows. IV does not follow from the first statement.

33. 3; First + second statement gives conclusion I. Conclusion II follows as conversion of conclusion I. Third statement, on conversion, gives conclusion IV but not conclusion III.

34. 4; I does not follow from the last statement, on conversion. II does not follow from the second statement, on conversion. Ill does not follow from the first statement, on conversion. 1st + 2nd + 3rd statement gives conclusion IV.

35. 2; As all the statements are I-type, no conclusion is possible from their combinations. Hence None follows.

36.3; Some chocolates are breads + All breads are pastries = Some chocolates are pastries → on conversion → Some pastries are chocolates. Hence II follows. 1st statement + Some chocolates are pastries gives no conclusion. Hence I and III do not follow but they make a complementary (I-O) pair. Hence either I or III follows.
IV does not follow from the last statement.

37.5  38.1
39. 5; I follows from the last statement, on conversion. Similarly, II follows from the first statement, on conversion. Conclusions III and IV do not follow.

40. 3; IV follows from the second statement, on conversion. Some doors are windows + All windows are dogs = Some doors are dogs → on conversion → Some dogs are doors. Hence I follows and II does not. III does not follow from the last two statements.

41. 5; 1st + 2nd statements gives conclusion III. 2nd + 3rd statements gives conclusion IV. I and II do not follow.

42. 2; III follows from the first statement, on conversion. 1st statement + 2nd statement gives: Some bricks are pens... (A) → on conversion → Some pens are bricks. Hence II follows. (A) + 3rd statement gives conclusion IV, which on conversion, give conclusion I.

43. 3; III follows from the last statement, on conversion. 1st statement + 2nd statement gives: No cup is water... (A). Hence IV does not follow from A, on conversion. (A) + last statement gives: Some clothes are not cups. Hence, I does not follow. 2nd statement + last statement gives: Some clothes are not tables. Hence II does not follow.

44.4; As all the statements are I-type, hence no conclusion follows from their combinations. But I and IV make a complementary pair, hence either I or IV follows.

45. 5; 1st statement + 2nd statement gives: All trucks are cars... (A). Hence II does not follow, on conversion. (A) + last statement gives conclusion III. III, on conversion, gives: Some trains are trucks. Hence I does not follow. The last two statements gives conclusion IV.

46. 1; 1st + 2nd statement gives no conclusion. Hence I does not follow. 2nd + last statement gives: Some chairs are not fruits. Hence II does not follow. III does not follow from combining all. IV does not follow from the last statement, on conversion.

47.4; Some fruits are towers (I) + All towers are windows (A) ⇒ Some fruits are windows (I) (• I + A = I). Now, conversion of “Some fruits are windows” gives conclusion III.

48.1; Conclusions I and III make a complementary pair. Hence, either I or III follows. Conclusion II does not follow since “No train is a dog” (E) + “All dogs are parrots” (A) gives the conclusion “Some parrots are not trains” [• E + A = O]. Conclusion IV does not follow because “Some buses are trains” + “No train is a dog” gives the conclusion “Some buses are not dogs” [• I + E = O].

49. 5; “Some flowers are boxes” (I) + “All boxes are tigers” (A) gives conclusion “Some flowers are tigers” (I) [• I + A = I]. On conversion we get “Some tigers are flowers”. Hence conclusion II follows but IV does not follow. “Some cups are flowers” (I) + “Some flowers are boxes” (I) gives no conclusion [• I + I = No conclusion]. Hence III does not follow. No relation is given between tigers and cups and hence, I does not follow.

50.4; “Some cats are lions” (I) + “All lions are hares” (A) ⇒ “Some cats are hares” (I) [• I + A = I]. Hence, conclusion IV follows. Conversion of conclusion IV gives conclusion III. Now, conclusion IV + “All hares are horses” (A) gives conclusion I [• I + A = I]. “All lions are hares” (A) + “All hares are horses” (A) gives conclusion “All lions are horses” (A) [• A + A = A]. Now “All lions are horses” implies “Some horses are lions.” Hence, conclusion II also follows.

51.5; Only III and IV follow

52. 3; Conclusion II follows from conversion of
the conclusion obtained from statement (b) and statement (c) \[ \therefore I + A = I \]. Conclusions I, III and IV do not follow because statement (a) + statement (b) gives no conclusion. But the conclusions I and IV make a complementary pair IE-type. Hence, either of the two follows.

53. 4; Conclusion IV follows from statement (b) and statement (c). \[ \therefore I + A = I \]. Conclusion I follows from conversion of conclusion IV. Statement (a) and statement (b) give no conclusion \[ \therefore A + I = \text{no conclusion} \]. Therefore, conclusions II and III do not follow.

54.3; Statement (a) + statement (b) gives the conclusion “No fans are green” [say (d)] \[ \therefore A + E = E \]. Now, conversion of statement (d) gives conclusion IV. Now statement (c) + conclusion IV gives the conclusion “Some windows are not fans”. Hence, I does not follow. Conclusion III does not follow because conclusion IV follows.

Again, statement (b) + conversion of statement (c) gives the conclusion “Some windows are not rooms”. Hence, conclusion II does not follow.

55. 5; Only I, II and IV follow.

Statement (a) + statement (c) gives conclusion IV \[ \therefore I + A = I \]. Statement (b) + statement (c) gives conclusion II \[ \therefore A + A = A \]. Now, statement (b) + conversion of statement (a) gives no conclusion. Hence, conclusion III does not follow. Conversion of conclusion IV gives conclusion I.

59. 4; Statement (a) + statement (b) gives no conclusion \[ \therefore A + I = \text{no conclusion} \]. Hence, conclusion I does not follow. Statement (b) + statement (c) gives the conclusion “Some stars are hills” \[ \therefore I + A = I \]. Conversion of “Some stars are hills” gives conclusion II. Conclusion III does not follow because statement (a) + statement (b) gives no conclusion. Conclusion IV follows from statement (a).

Hence, conclusion II does not follow. Conclusions I and IV do not follow because no conclusion can be obtained regarding candles and trains. Statement (b) + statement (c) gives no conclusion \[ \therefore I + I = \text{no conclusion} \]. Hence, conclusion III does not follow.

58. 2; Statement (a) + statement (b) gives the conclusion “Some stones are not trees.” \[ \therefore E + A = O^* \]. Hence, conclusion I does not follow. Statement (b) + statement (c) gives the conclusion “All fruits are rains”. On conversions it gives conclusion III. Now, statement (a) + “All fruits are rains” gives the conclusion “Some rains are not trees” \[ \therefore E + A = O^* \]. Conclusions II and IV do not follow but these two conclusions make a complementary pair (EI-type). Hence, either conclusion II or conclusion IV follows.

62. 2;
gives no conclusion \[ \therefore A + I = \text{no conclusion} \]. Hence, conclusion III does not follow. But conclusion IV follows from statement (a).

64. 1; Statement (a) + conversion of statement (b) ("Some flowers are houses") gives no conclusion \[ \therefore A + I = \text{no conclusion} \]. Hence, conclusion I does not follow. Statement (c) + Statement (b) gives no conclusion \[ \therefore A + I = \text{no conclusion} \]. Hence, conclusions II and IV do not follow. But these two conclusions make a complementary pair (IE-type). Hence, either II or IV follows. Conclusion III follows from conversion of statement (a).

65. 5; Only I, II and III follow. Statement (a) + Statement (b) gives conclusion I \[ \therefore A + E = E \]. Hence, conclusion I follows but conclusion IV does not follow. Conclusion II follows from conversion of statement (c). Similarly, conclusion III follows from conversion of statement (a).

66. 2; Conversion of statement (c) gives conclusion I. Similarly, conversion of statement (a) gives conclusion II. Statement (a) + Statement (b) gives no conclusion \[ \therefore A + I = \text{No conclusion} \]. Hence, conclusion I follows but conclusion IV does not follow. Conclusion II follows from conversion of statement (c). Similarly, conclusion III follows from conversion of statement (a).

67. 2;

68.3; Statement (a) + Statement (b) gives no conclusion \[ \therefore 1 + 1 = \text{no conclusion} \]. Therefore, conclusions II and III do not follow. But these two conclusions make complementary pair of IE-type. Therefore, either conclusion II or conclusion III follows. Since Statement (a) + Statement (b) gives no conclusion therefore "train" and "tiger" can’t be related. Hence, conclusion I does not follow. "All tigers are waters" \[ \rightarrow \] on conversion \[ \rightarrow \] "Some waters are tigers". Hence, conclusion IV does not follow.

69.4; Statement (a) + Statement (b) gives conclusion "Some buses are mountains" \[ \therefore 1 + A = I \rightarrow \] on conversion \[ \rightarrow \] "Some mountains are buses". Hence, conclusion I follows. Again, Some buses are mountains + Some mountains are roads gives no conclusion \[ \therefore 1 + 1 = \text{no conclusion} \]. Hence, conclusion II does not follow. Again, Statement (b) + "Some mountains are roads" gives no conclusion \[ \therefore A + 1 = \text{no conclusion} \]. Hence, conclusion III does not follow. Conclusion IV follows from conversion of statement (c).

70.5; Only II and IV follow. Statement (a) + Statement (b) gives no conclusion \[ \therefore A + 1 = \text{no conclusion} \]. Therefore, conclusion I does not follow. Again, Statement (b) + Statement (c) gives the conclusion "Some jungles are elephants" \[ \therefore 1 + A = I \rightarrow \] on conversion \[ \rightarrow \] "Some elephants are jungles". Hence, conclusion II follows. Conclusion III does not follow because Statement (a) + Statement (b) gives no conclusion. Again, All rabbits are elephants gives conclusion IV [on conversion].

71.1; Statement (a) + Statement (b) gives the conclusion “No books are houses” \[ \therefore A + E = E \]. Hence, conclusion I follows but conclusion IV does not follow. Again, “No books are houses” + Statement (c) gives the conclusion “Some doors are not books” \[ E + A = O^* \]. Hence, conclusion II does not follow.

Again, Statement (b) + Statement (c) gives the conclusion "Some doors are not pens" \[ E + A = O^* \]. Hence, Conclusion III does not follow.

72.1; Conclusion I is the conversion of first statement, hence I follows. But II does not follow because A + A = A ie All leaders are good orators but not vice versa.

73.1; A + A = A; ie All terrorists are human.

74.2; I does not follow. But II follows because it is conversion of the first statement.

75.3 76.4