LOGICAL REASONING (Answers on page 2)

DEDUCTIONS – 1

1) Statements:
Some thin are soft
All balloons are thin

Conclusions:
Some soft are thin
All thin are balloons

2) Statements:
Some trolleys are bags
All bags are packages

Conclusions:
All bags are trolleys
Some packages are trolleys

3) Statements:
All dictionaries are thick
All textbooks are thick

Conclusions:
Some thick are textbooks
Some dictionaries are textbooks

4) Statements:
Some scenic are valleys
All valleys are greenish

Conclusions:
Some greenish are valleys
Most scenic are greenish

5) Statements:
All candies are sweet
All candies assorted

Conclusions:
Sweet are assorted
Some assorted are sweet

6) Statements:
Some pots are heavy
Some heavy are rigid

Conclusions:
Some rigid are pots
Some pots are not rigid

7) Statements:
All fruits are healthy
Some healthy are honey

Conclusions:
Most honey are fruits
No healthy is honey

8) Statements:
No fans are cables
Some cables are short

Conclusions:
Some fans are short
No cables are fans

9) Statements:
Some books are white
Some whites are elegant

Conclusions:
Some books are elegant
No books are elegant

10) Statements:
All blades are sharp
Some sharp are metals

Conclusions:
No metals are blades
Some blades are metals

11) Statements:
Some atoms are molecules
No electrons are protons

Conclusions:
Some molecules are not protons
All molecules are protons

Approach:

First of all, draw a **basic diagram** (diagram with the **least possible overlap**) in accordance with the given statements (premises), then check whether the given conclusions valid for the basic diagram or it is invalid for the basic diagram. Look at the YouTube Video Sessions for more details about drawing basic diagrams:
Basics 1: https://youtu.be/DTJzRnZoXkM Basics 2: https://youtu.be/BvedmO-UdXs

There are four possible options when the conclusion is evaluated with the basic diagram.

Option 1:
A positive conclusion is valid for the basic diagram, then it **follows** the statements. Look at the YouTube Video for more details: https://youtu.be/j6pclg7RGgQ

Option 2:
A positive conclusion is invalid for the basic diagram, then it **doesn't follow** the statements.

Option 3:
A negative conclusion is invalid for the basic diagram, then it **doesn't follow** the statements.

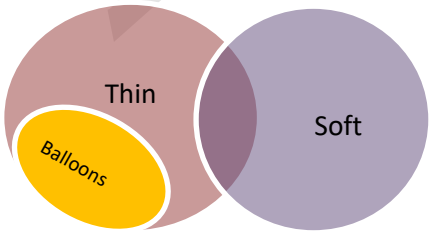
Option 4:
A negative conclusion is valid for the basic diagram, then there are four steps involved to reach the answer. Look at the YouTube Video for more details: https://youtu.be/og0QaHeKTew.
Step 1: Negate the given negative conclusion which is valid for the basic diagram. (Negation is the process of changing the negative conclusion to a positive conclusion).
Step 2: Draw a NEW diagram (NOT the basic diagram) using the negated conclusion.
Step 3: Check the NEW diagram exists or not (Compare it with the given statements).
Step 4: If the NEW diagram exists, then the original conclusion doesn't follow and if the NEW diagram doesn't exist, then the original conclusion follows.

Answers:

1) ***Ans: Only Conclusion I follows***
Conclusion I: "Some soft are thin" (Valid for the basic diagram below, so the conclusion follows the statements)
Conclusion II: "All thin are balloons" (Invalid for the basic diagram, so it doesn't follow the statements)

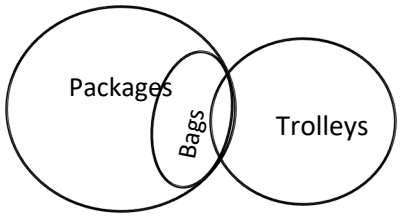
Statements:
Some thin are soft
All balloons are thin

Basic Diagram



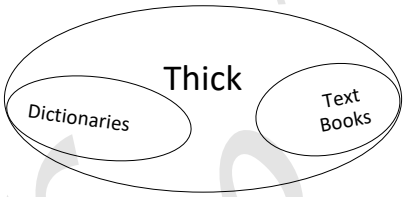
2) ***Ans: Only Conclusion II follows***
Conclusion I: "All bags are trolleys" (Invalid for the basic diagram below, so the conclusion doesn't follow the statements)
Conclusion II: "Some packages are trolleys" (Valid for the basic diagram, so it follows)
Statements:
Some trolleys are bags All bags are packages

Basic Diagram



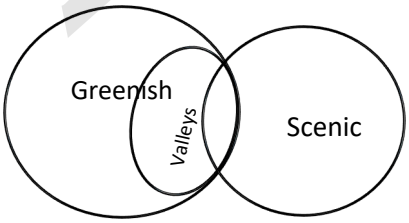
3) **Ans: Only Conclusion I follows**
Conclusion I: "Some thick are text books" (Valid for the basic diagram below, so the conclusion follows the statements)
Conclusion II: "Some dictionaries are text books" (Invalid for basic diagram, doesn't follow)
Statements:
All dictionaries are thick All textbooks are thick

Basic Diagram



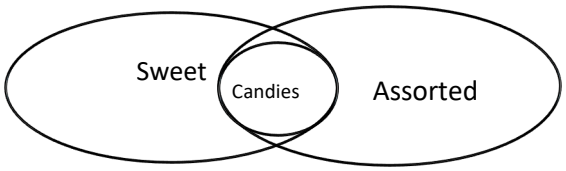
4) ***Ans: Both Conclusions I and II follow***
Conclusion I: "Some greenish are valleys" (Valid for the basic diagram below, so it follows)
Conclusion II: "~~Most~~ Some scenic are greenish" (Most means Some, hence Most is replaced with the word Some) (Valid for the basic diagram, conclusion follows)
Statements: Some scenic are valleys All valleys are greenish

Basic Diagram



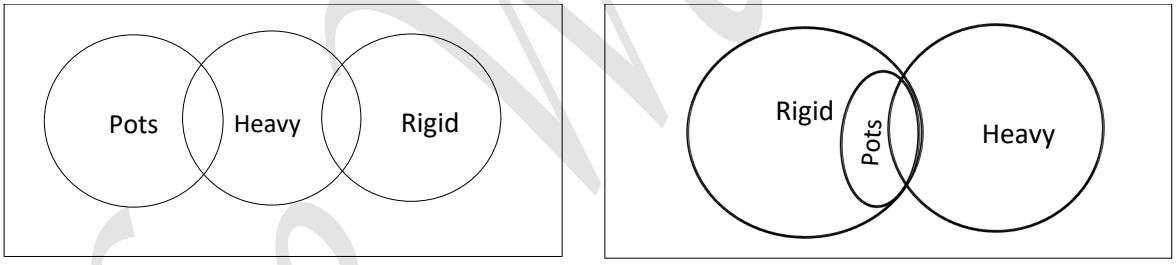
5) ***Ans: Only Conclusions II follows***
Conclusion I: "Sweet are assorted" means All sweet are assorted (Invalid for the basic diagram, conclusion doesn't follow)
Conclusion II: Some assorted are sweet" (Valid for the basic diagram, conclusion follows)
Statements: All candies are sweet All candies assorted

Basic Diagram



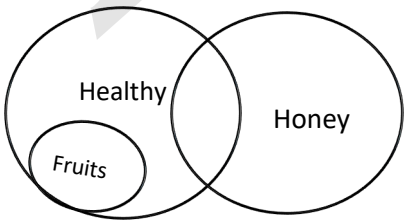
6) ***Ans: Both Conclusions I and II do not follow*** *(Neither Conclusion I nor II follows)*
Conclusion I: "Some rigid are pots" (Invalid for the basic diagram, conclusion doesn't follow)
Conclusion II: "Some pots are not rigid" (Valid for the basic diagram, **however,** conclusion is NEGATIVE. So, it requires to draw a NEW diagram with negated conclusion (All pots are rigid). **(Negation of 'Some pots are not rigid'** is **'All pots are rigid'. It is a standard format).**
New Diagram exists when we check with statements, therefore, conclusion II doesn't follow.
Look at the YouTube Video for step by step process: https://youtu.be/og0QaHeKTew
Statements: Some pots are heavy Some heavy are rigid

Basic Diagram **New Diagram**



7) ***Ans: Both Conclusions I and II do not follow*** *(Neither Conclusion I nor II follows).*
Conclusion I: "~~Most~~ Some honey are fruits" (Invalid for the basic diagram, doesn't follow)
Conclusion II: "No healthy is honey" (Invalid for the basic diagram: A negative conclusion invalid for the basic diagram means it doesn't follow. NO NEED to NEGATE it in this case).
Statements: All fruits are healthy Some healthy are honey

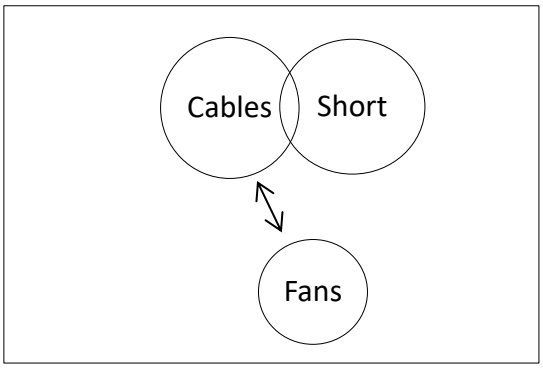
Basic Diagram



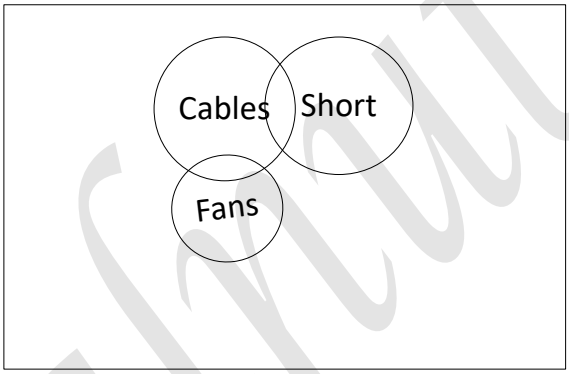
8) ***Ans: Only Conclusion II follows***

Conclusion I: "Some fans are short" (Invalid for the basic diagram, conclusion doesn't follow)
Conclusion II: "No cables are fans" (Valid for the basic diagram, **however,** conclusion is **negative**. So, it requires a NEW diagram with negated conclusion (Some cables are fans).
New Diagram doesn't exist because it violates the statement condition 'No cables are fans'.
Since the new diagram doesn't exist, ***original conclusion*** *(No cables are fans)* ***follows***.
Statements: No fans are cables Some cables are short

Basic Diagram



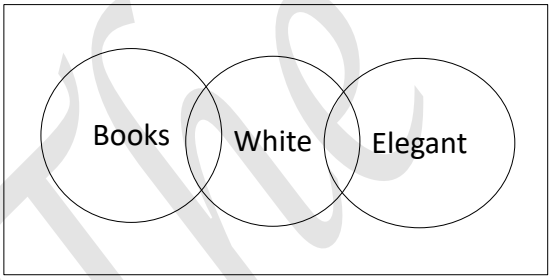
New Diagram



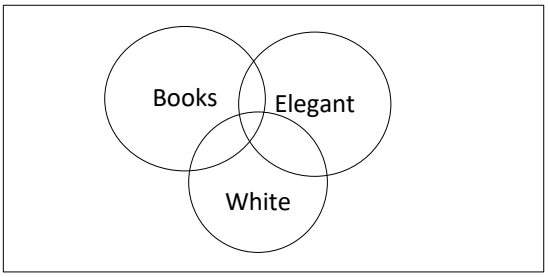
9) ***Ans: Either Conclusions I or II follows***

Conclusion I: "Some books are elegant" (Invalid for the basic diagram, it doesn't follow)
Conclusion II: "No books are elegant" (Valid for the basic diagram, **however,** conclusion is **negative**. So, it requires a NEW diagram with negated conclusion (Some books are elegant).
New Diagram exists when we check with statements, therefore, conclusion II doesn't follow.
Statements: Some books are white Some whites are elegant

Basic Diagram



New Diagram



However, this is a special case where first conclusion and second conclusion are negated pairs ('Some books are elegant' **is the negation of** 'No books are elegant').
In this special circumstance we may look at 3 conditions to check it is 'either or type'.

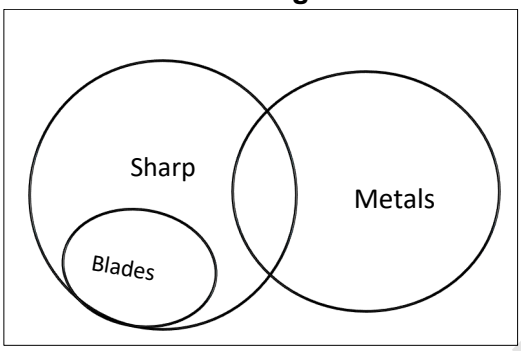
1) One conclusion is the negation of the other (This case 'Yes'; SOME and NO)
2) Both conclusions do not follow (Yes)
3) Subject (first term: books) of both conclusions are same and predicate (second term: elegant) of both conclusions are same. (Yes).
   Look at the YouTube Video for detailed steps: https://youtu.be/usKylpUn1PI

10) ***Ans: Either Conclusions I or II follows***

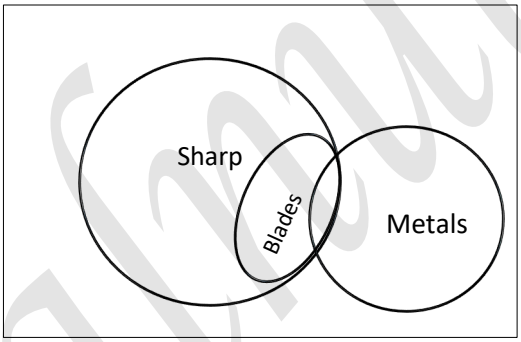
Conclusion I: "No metals are blades" (Valid for the basic diagram, **however,** conclusion is **negative**. So, it requires a NEW diagram with negated conclusion (Some metals are blades). New Diagram exists when we check with statements, therefore, conclusion I doesn't follow.
Conclusion II: "Some blades are metals" (Invalid for the basic diagram, it doesn't follow)

Statements:
All blades are sharp
Some sharp are metals

Basic Diagram



New Diagram



However, this is a special case where first conclusion and second conclusion are negated pairs ('Some metals are blades is equivalent to **Some blades are metals'** and it is the negation of **'No metals are blades').**

In this special circumstance we may look at 3 conditions to check it is 'either or type'.

1) One conclusion is the negation of the other (This case SOME and NO)
2) Both conclusions do not follow
3) Subject (first term) of Conclusion I is the predicate (second term) of conclusion II and predicate of conclusion I is the subject of conclusion II. (Subject and predicate of Conclusions I and II are interchanged).

Ultimately, if it is SOME and NO pair, if both terms are same for two conclusions (even if the subject is predicate and predicate is subject) then it is either or pair. **This is applicable only for SOME and NO pair**. YouTube for more details: https://youtu.be/usKylpUn1PI

(Continue on next page…..)

11) ***Ans: Either Conclusions I or II follows***

Conclusion I: "Some molecules are not protons" (Valid for the basic diagram, **however,** conclusion is **negative**. So, it requires a NEW diagram with negated conclusion (All molecules are protons). New Diagram exists when we check with statements, therefore, conclusion I doesn't follow.

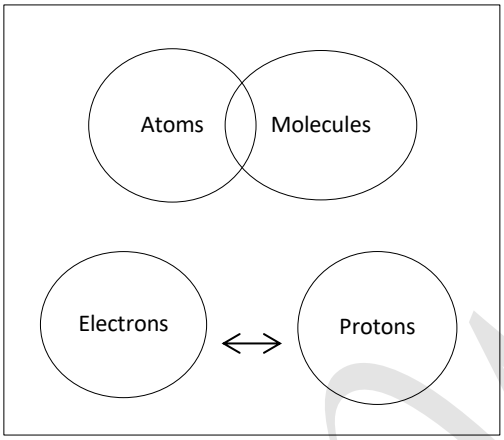
Conclusion II: "All molecules are protons" (Invalid for the basic diagram, conclusion doesn't follow)

Statements:

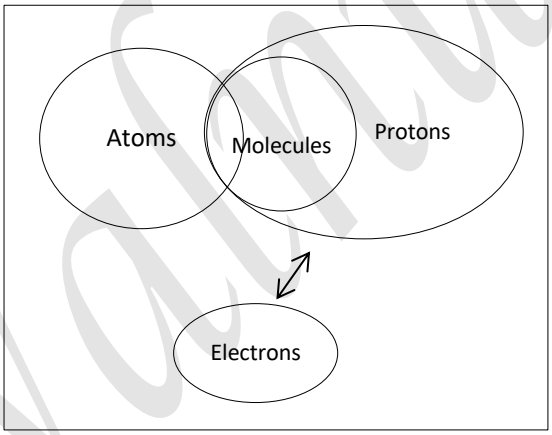
Some atoms are molecules

No electrons are protons

Basic Diagram



New Diagram



However, this is another special case where first conclusion and second conclusion are negated pairs ('All molecules are protons' is the negation of **'Some molecules are not protons').** In this special circumstance we may look at 3 conditions to check it is 'either or type'.

1) One conclusion is the negation of the other (This case SOME NOT and ALL)
2) Both conclusions do not follow
3) Subject (first term: molecules) of both conclusions are same and predicate (second term: protons) of both conclusions are same. Look at the YouTube Video for more details: https://youtu.be/6vSuUt4l8xY