Syllgisms

SYLLOGISMS

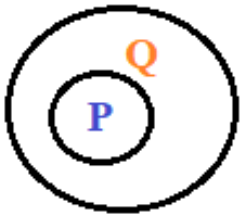
A Syllogisms also known as Syllogistic Reasoning, is a logical argument where a specific form (the conclusion) is inferred from two or more specific statements (the premises). There is a famous graphical method called "Venn diagrams" after the *British mathematician John Venn (1834–1923),* that can tell valid syllogisms from in valid ones.

A Syllogisms called *valid* if the conclusion follows logically from the premises (statements), wherever we take the real predicates and objects to be: if the premises are true, the conclusion must be true. The Syllogisms is *invalid* otherwise. Thus, in a simple language, based on the given statements, you have to find out the authenticity of the conclusions. The "Venn diagrams" is the widely used approach to solve these types of Questions.

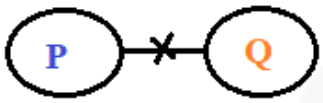
TYPES OF QUESTIONS ASKED IN SYLLOGISMS:

Here we have discussed the general types which are most likely to be asked in the SSC & Railways examinations.

1) All P are Q - here in these types of questions, the first element is the subset of the second element. Below is the Venn diagram shown:



2) No P is Q – here in these types of questions, the first element is not at all associated with the second element. Below is the Venn diagram shown:



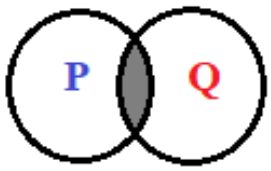
Following are some Universal rules that you must know to solve Syllogisms based problems:

Definite cases: (For questions containing only two items)

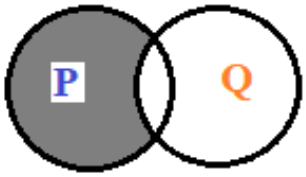
All+ All= All
All+ No= No
All+ Some= No conclusion
Some+ All= Some
Some+ No= Some Not
Some+ Some= No conclusion

Case of Possibility

3) Some P are Q – here in these types of questions, the first element is having the some part in common with the second element and the remaining is uncertain whether is a part of each other or not. The conclusions we may get from the above pattern are based on possibility and only one or a few out of them will be following the statement(s). Below is the Venn diagram shown:



4) Some P are not Q – here in these types of questions, the first element is having some part which is not common with the second element and it is uncertain whether the remaining portion of P touches Q or not. The conclusions we may get from the above pattern are based on possibility and only one or a few out of them will be following the statement(s). Below is the Venn diagram shown:



The most important are the POSSIBILITY CASES and you will need the below rules to attempt such type of questions:

1) If All P are Q then Some Q are Not P is a Possibility.
2) If Some Q are Not P then All P are Q is a Possibility.
3) If Some P are Q then All P are Q is a Possibility & All Q are P is a Possibility.

"Either or" & "Neither nor"

*Complementary Pair:

I. If one conclusion is positive and one is negative.
NO – SOME
SOME – SOME NOT
ALL – SOME NOT
II. Same subject and same predicate are there.
III. if not able to draw both the conclusions answer will me 'either or'.

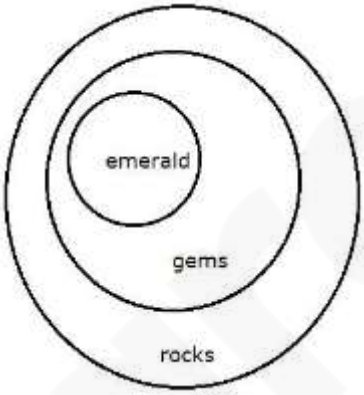
Some other concepts on which questions are asked in examinations are:

1**. Only a few –** means only "SOME" not "ALL".
2**. Few –** is same as "SOME".
3**. Only –** 'only M is N' implies that 'all N are M'.
4. **Often –** implies 'SOME'.
5**. Each –** implies 'ALL'.
6. **Every –** implies 'ALL'.
7. **Any –** implies 'ALL'.
8. **Almost –** implies 'SOME'.

9. **At least –** implies 'SOME'.
10. **Not Every** – Not every P is Q means Some P are not Q.
11. **Not All** – Not all P is Q means Some P are not Q.
12. "**None except** P are Q" and "**None but** P are Q" are just other ways of saying "Only P are Q."
13. '**All But'** P are Q means No P are Q.
14. Some P '**can be'** Q means Some P are Q is a possibility.
15. Some P '**can never'** be Q means Some P are not Q (definite).

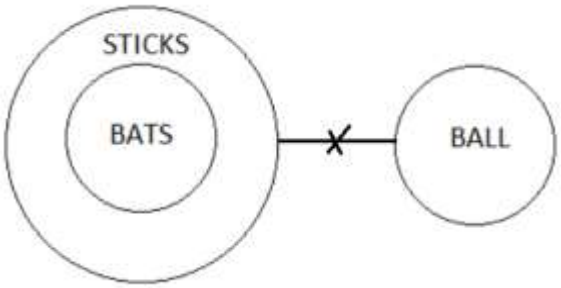
Solved Examples: -

Q1. **Read the given statements and the following conclusions carefully and select which of the conclusions logically follow(s) from the statements.**
Statements:
All emerald are gems.
All gems are rocks.
Conclusions:
1) All emeralds are rocks.
2) All rocks are emerald.
A. Only conclusion 2 follows.
B. No conclusions follow.
C. All the conclusions follow.
D. Only conclusion 1 follows.
Ans. D
Solution: The least possible Venn diagram is-



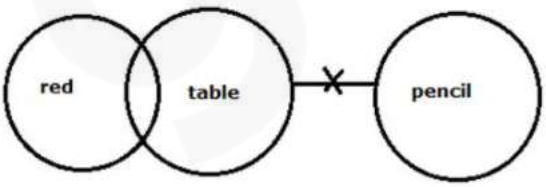
Conclusions:
1. All emeralds are rocks - (it follows because All emerald are gems and All gems are rocks.)
2. All rocks are emerald - (it does not follow as it's just a possibility, not a surety.)
So, only conclusion 1 follows.
Hence, option D is the correct answer.
Q2. **Two statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.**
Statements:
All bats are sticks.
No stick is a ball.
Conclusions:
I. No bat is a ball.
II. No ball is bat.

A. Neither conclusion I nor II follows.
B. Only conclusion I follows.
C. Only conclusion II follows.
D. Both conclusions I and II follow.
Ans. D
Solution: The least possible Venn diagram is-



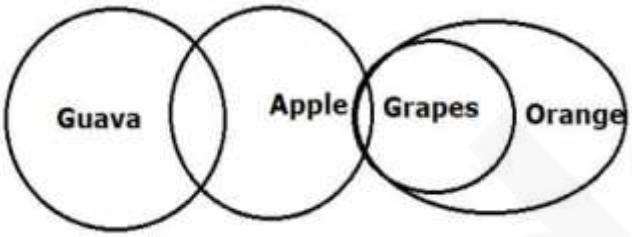
Conclusions:
I. No bat is a ball - (It is a definite case, hence true).
II. No ball is a bat - (It is a definite case, hence true).
So, both conclusions I and II follow.
Hence, option D is the correct answer.

Q3. **In the following question below are given some statements followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide of the given conclusion logically follows the given statements.**
Statements:
I. No pencil is table.
II. Some table are red.
Conclusions:
I. All red are table.
II. Some pencils are red.
A. Only conclusion I follows.
B. Only conclusion II follows.
C. Both conclusions I and II follow.
D. Neither conclusion I nor II follows.
Ans. D
Solution: The least possible Venn diagram is-



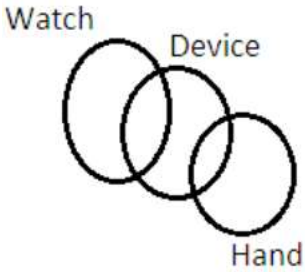
Conclusions:
I. All red are table – It is not a definite case, hence false.
II. Some pencils are red –It is not a definite case, hence false.
So, neither conclusion follows.
Hence, option D is correct answer.

Q4. **Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.**
Statements:
I. Some guavas are apples.
II. All grapes are oranges.
III. Some apples are grapes.
Conclusions:
I. Some apples are oranges.
II. no orange is guava.
III. Some oranges are guavas.
A. Only conclusion I and II follows.
B. Conclusion I and either II or III follows.
C. Conclusions II and III follow.
D. Only either conclusion I or III follows.
Ans. B
Solution: The least possible Venn diagram is-



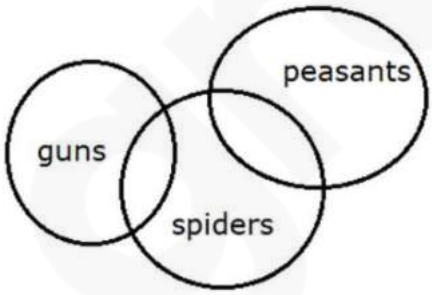
Conclusions:
I. Some apples are oranges - (it Follows the statement).
II. no orange is guava - (there is a possibility of statement).
III. Some oranges are guavas - (there is a possibility of statement.
Here both II and III have complementary pair therefore either II or III is true.
Hence, Conclusion I and either Conclusion II or Conclusion III follow
Hence, option B is the correct answer.
Q5. Two conclusions I and II are given after two statements. Considering the statements to be true, even if they may show variance at general accepted rule, and decide which conclusion follow the given statement logically.
Statements:
Some watches are devices.
Some devices are hands.

Conclusions:
I. Some hands are watches.
II. No hand is watch.
A. Only conclusion II follows.
B. Neither conclusion I nor conclusion II follow.
C. Only conclusions I follow.
D. Either conclusion I or conclusion II follows
Ans. D
Solution: The least possible Venn diagram is-



Conclusions:
I. Some hands are watches - (It does not follow independently as its just a possibility, not surety.)
II. No hand is watch. - (It also does not follow independently as its just a possibility, not surety.)
As, we see no negative statements given in the questions, so here some + No will make either or occurrence situation.
So, either conclusion I or conclusion II follows.
Hence, option D is the correct answer.

Q6. **The statements below are followed by two conclusions labeled I and II. Assuming that the information in the statements is true, even if it appears at variance with generally established facts, decide which conclusion(s) logically and definitely follow(s) from the information given in the statements.**
Statements:
Some guns are spiders.
Some spiders are peasants.
Conclusions:
I. Some guns are peasants.
II. Some peasants are guns.
A. Only conclusion II follows.
B. Only conclusions I follow.
C. Neither conclusion I nor conclusion II follow.
D. Both conclusions follow.
Ans. C
Solution: The least possible Venn diagram is-



Conclusions:
I. Some guns are peasants - (it does not follow independently as its just a possibility, but not surety.)
II. Some peasants are guns - (it also does not follow independently as its just a possibility, but not surety.)
As no negative statements given, so, some + no results to either or option.
So, neither conclusion I nor conclusion II follows.
Hence, option C is the correct answer.

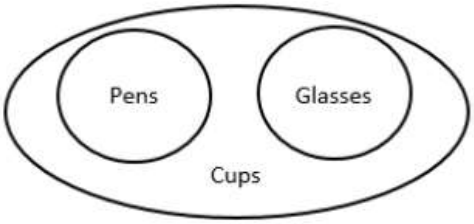
Q7. **In the following question below are given some statements followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusion logically follows the given statements.**

Statements:

1. All pens are cups.
2. All glasses are cups.

Conclusions:

I. Some pens are glass.
II. Some cups are glass.
III. Some glasses are pens.
A. Only conclusion I and II follow.
B. Only conclusions I follow.
C. Only conclusions II follow.
D. No conclusion follows.
Ans. C
Solution: The least possible Venn diagram is-



Conclusions:

I. Some pens are glass - False, it is not a definite case.
II. Some cups are glass - True, it is a definite case.
III. Some glasses are pens - False, it is not a definite case.
So, only conclusion II follows.
Hence, option C is the correct answer.

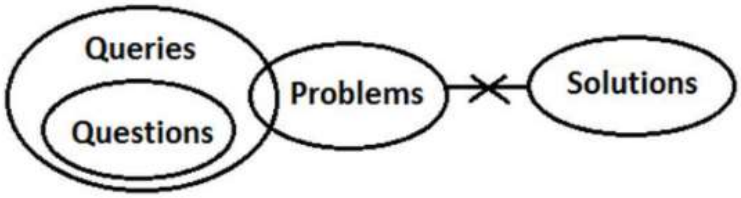
Q8. **In the question below are given three statements followed by the conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.**

Statements:

All Questions are Queries.
Only a few Queries are Problems.
No Problems are Solutions.

Conclusions:

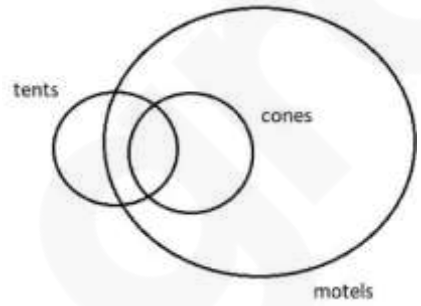
I. Some Questions are Solutions.
II. No Questions are Solutions.
A. Only conclusion I follows.
B. Only conclusions I follow.
C. Either conclusion I or II follows.
D. Neither conclusion I nor II follows.
Ans. C
Solution: The least possible Venn diagram is-



Conclusions:
I. Some Questions are Solutions – There is no relation between Questions and Solutions hence it is false.
II. No Questions are Solutions – There is no relation between Questions and Solutions hence it is false.
So, either conclusion I or II follows.
Hence, option C is the correct answer.

Q9. **The statements below are followed by two conclusions labelled I and II. Assuming that the information in the statements is true, even if it appears to be at variance with generally established facts, decide which conclusion(s) logically and definitely follow(s) from the information given in the statements.**

Statements:
I. Some tents are cones.
II. All the cones are motels.
Conclusions:
I. All the motels are cones.
II. Some tents are motels.
A. Neither conclusion I nor conclusion II follow.
B. Only conclusions II follow.
C. Either conclusion I or conclusion II follows.
D. Only conclusion I follows.
Ans. B
Solution: The least possible Venn diagram is-



Conclusions:
I. All the motels are cones - (it does not follow as its just a possibility, not surety).
II. Some tents are motels - (it follows because Some tents are cones and All the cones are motels).
So, only conclusion II follows.
Hence, option B is the correct answer.

Q10. **In the following question, some statements followed by some conclusions are given. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusions logically follows the given statements.**

Statements:

All hotels are buses.

Some buses are cars.

Conclusions:

I. Some hotels can be cars.

II. All cars are buses.

III. Some cars can never be hotels.

A. None of the conclusion follows.

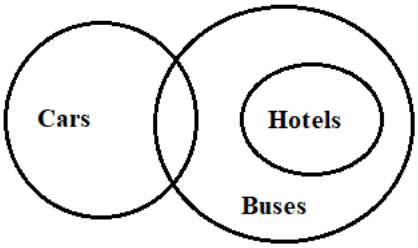
B. Both conclusion I and II follows.

C. Both conclusion II and III follows.

D. Only conclusion I follow.

Ans. D

Solution: The least possible Venn diagram is-



Conclusions:

I. Some hotels can be cars – True, as it is a case of possibility.

II. All cars are buses – False, as it is not a definite case.

III. Some cars can never be hotels – False, it is neither a definite case nor a case of possibility true holds here.

So, only conclusion I follow.

Hence, option D is the correct answer.