SYLLOGISM

Syllogisms form an integral part of reasoning. Questions from this topic frequently appear in various MBA entrance exams like CAT, SNAP, IIFT, etc; Bank PO exams and other aptitude tests.
Syllogism is a form of reasoning in which a conclusion is drawn from two or three given propositions or statements. It uses deductive reasoning rather than inductive reasoning. You have to take the given statements to be true, even if they are at a variance from established facts.
Let us see an example of deductive reasoning.
Statements:

A. All cats are dogs.
B. All dogs are birds.

Conclusion – All cats are birds.
This conclusion is quite visible. But to solve complex problems we have some standard methods.

Method 1- Analytical Method :
Following are the four major types of statements generally asked:

Sr. No.	Type of statement	Represented by the letter	Example
1	Universal Positive	A	All boys are handsome
2	Universal Negative	E	No girl is clever
3	Particular Positive	I	Some rats are dogs
4	Particular Negative	O	Some ships are not planes

While deriving conclusions, following points should be kept in mind:

- With two particular statements, no universal conclusion is possible.
- With two positive statements, no negative conclusion is possible.
- With two negative statements, no positive conclusion is possible.
- With two particular statements, no conclusion is possible, except when an 'I' type of statement is given and then by reversing it, an 'I' type of conclusion is given.

Important points related to conclusions drawn from single statements.

- A statement of type 'E' when reversed, gives a conclusion of type 'E & O'.
- A statement of type 'A' when reversed, gives a conclusion of type 'I'.
- A statement of type 'I' when reversed, gives a conclusion of type 'I'
- A statement of type 'O' when reversed, does not give a conclusion of any type.

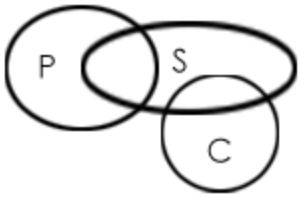
Method 2- Venn Diagrams
Another method of solving such type of questions is by drawing Venn diagram representing the statements. However, it is important that all possible Venn diagrams be drawn. If a conclusion can be deduced from all the possible solutions then that conclusion is true. If the conclusion can be concluded from one of the possible Venn diagram and not from the other possible Venn diagram then that conclusion is taken as false.

Solved Examples
Example1: Which of the two conclusions can be concluded on the basis of given statements?

- Statements:
- Some parrots are scissors.
- Some scissors are not combs.
- Conclusions:

- Some scissors are parrots.
- Some combs are parrots.

Solution: Now, in this case, the possible conclusion is: Some scissors are parrots (I to I), as the universal principal no. 4 says, that with two particular statements only I to I is possible. Therefore, only 1 conclusion is possible. Nothing else is possible.

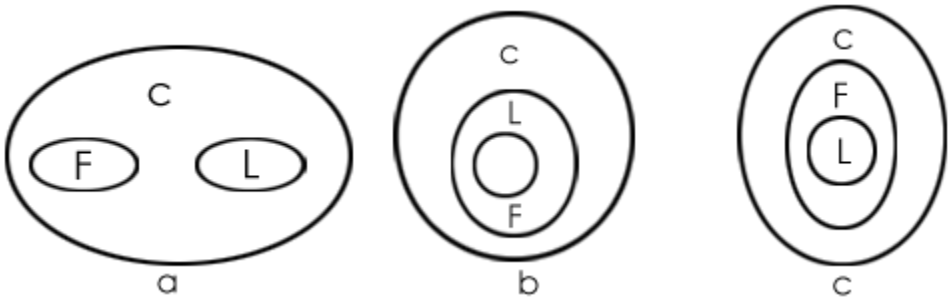


Example 2 : Which of the two conclusions can be concluded on the basis of given statements?

- Statements:
- All flowers are candles.
- All lanterns are candles.
- Conclusions:
- Some flowers are lanterns.
- Some candles are lanterns.

Solution:

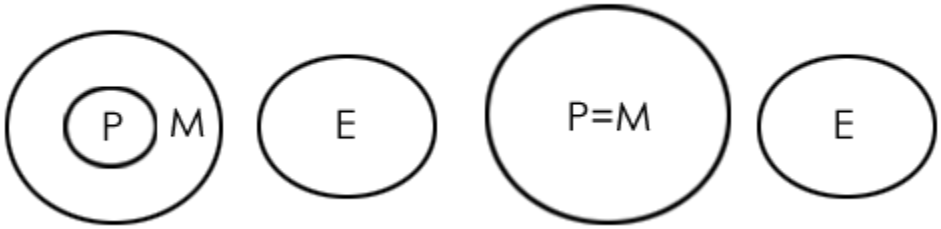
Three possible diagrams are shown above for the given statements.
Conclusion I follows from last two possible solutions, but does not follow from the first possible solution. Therefore, this conclusion is false.
Conclusion II follows from all the three possible solutions.
Therefore, conclusion II is true.



Example 3: Which of the two conclusions can be concluded on the basis of given statements?

- Statements:
- All prisoners are men.
- No man is educated.
- Conclusions:
- All prisoners are uneducated.
- Some men are prisoners.

Solution: Two possible diagrams are shown below for the given statements.

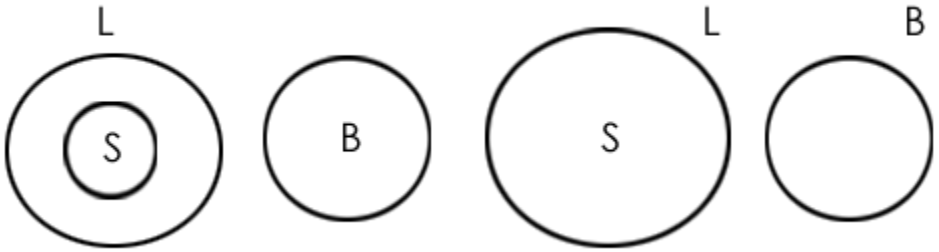


Conclusion I follows from both the possibilities, so conclusion I is true.
Conclusion II also follows from both the possibilities, so conclusion II is also true.
Therefore, both conclusions are true.

Example 4: Which of the two conclusions can be concluded on the basis of given statements?

- Statements:
- All sides are lengths.
- No length is a breadth.
- Conclusions:
- All lengths are sides
- No breadth is a side

Solution: Two possible diagrams are shown below for the given statements.



Conclusion I: False (conclusion follows from the second possibility but doesn't follow from the first possibility)
Conclusion II: True (conclusion follows from both the Venn diagram possibilities.)
Therefore, only conclusion II is true.

QUESTION FOR PRACTICE :

Directions (1 - 17): In each of the questions given below are given some statements followed by some conclusions. Read all conclusions and give the answer as follows–
A. If only conclusion I follows.
B. If only conclusion II follows.
C. If either conclusion I or II follows.
D. If neither conclusion I nor II follows.
(e) If both conclusions I and II follow

1. Statements : Some walls are windows.
Some windows are doors.
All doors are roofs.
Conclusions : I. Some doors are walls.
II. No roof is a window.

2. Statements : All switches are plugs.
Some plugs are bulbs.
All bulbs are sockets.
Conclusions : I. Some sockets are plugs.
II. Some plugs are switches.

3. Statements: Some ovens are refrigerator.
Some refrigerators are ACs.
Conclusions: I. Some ACs are ovens.
II. No. AC is oven.

4. Statements: All planes are birds.
All birds are clouds.
Conclusions : I. Some planes are clouds.

II. Some clouds are birds.

5. Statements: Some papers are plastics.
All papers are clothes.

Conclusions : I. Some plastics are clothes.
II. No plastic are clothes

6. Statements : Some cars are bus.
All buses are trains.
All trains are cycles.

Conclusions : I. All buses are cycles.
II. Some cars are trains.

7. Statements : Some balls are Wickets
Some wickets are bats
All bats are football.

Conclusions : I. Some balls are bats.
II. Some wickets are football.

8. Statements : Some B are J.
All J are C.
All C are T.

Conclusions: I. All J are T.
II. Some C are T.

9. Statements : Some P are M.
Some M are C.
Some C are K.

Conclusions : I. Some P are K.
II. Some C are P.

10. Statements : All P are F.
Some F are G.
All G are B.

Conclusions : I. Some F are B.
II. Some P are G.

11. Statements : All earths are suns.
Some suns are planets.
All planets are Moons.

Conclusions : I. Some Moons are earths.
II. No earth is a Moon

12. Statements : Some A are Bs
Some Bs are Cs
All Cs are F.

Conclusions : I. Some A are Cs.
II. Some Bs are F.

13. Statements : Some E are Gs.
All Gs are J.
All J are H.

Conclusions : I. All Gs are H.
II. Some J are H.

14. Statements : Some K are L.
Some L are M.
Some M are N.

Conclusions : I. Some K are N.
II. Some M are K.

15. Statements : All D are S.
All Tare S.
All S are M.

Conclusions : I. Some M are D.
II. Some T are M

16. Statements : Some Q are T.
Some T are U.
Some U are S.

Conclusions : I. Some S are Q.
II. Some S are T.

17. Statements : All P are R.
All R are O.
All O are buses.

Conclusions : I. Some buses are P.
II. Some O are P.

18. Statements : All chairs are tables.
All tables are women.

Conclusions : I. All chairs are woman.
II. All woman are chairs.

A. Only conclusion I follows
B. Only conclusion II follows
C. Only conclusion I and II follow
D. Neither conclusion I nor II follows.

19. Statements : All pens are pencils.
No pencil is monkey.

Conclusions : I. No pen is monkey
II. Some pens are monkeys.
III.All monkey are pens.
IV.Some monkey are pens.

A.Either conclusioon II or III follow
B. Either conclusion II or IV follow
C. Only conclusion I follows
D. All conclusion follow

20. Statements : All crows are black.
Some black things are beautiful.

Conclusions : I. Some crows are beautiful.
II. Some beautiful things are black.

A. Only conclusion I follow
B. Only conclusion II follows
C. Only conclusion I and II follows
D. Neither conclusion I nor II follows.

21. Statements : Some books are mobiles.
Some calculators are mobile.

Conclusions : I. Some mobiles are calculators.
II. Some mobiles are books.

A. Only conclusion I follow
B. Only conclusion II follows
C. Only conclusion I and II follows
D. Neither conclusion I nor II follows.

22. Statements : Some actress are singers.
All singers are dancer.

Conclusions : I. Some actress are dancer.
II. No singer is actress.

A. Only conclusion I follow
B. Only conclusion II follows
C. Neither conclusion I nor II follows
D. Either conclusion I or II follows.

DIRECTION FOR (Q23 - Q29) :

A. If only conclusion I follows
B. If only conclusion II follows
C. If either conclusion I or II follows
D. If neither conclusion I nor II follows.
(E) If both conclusion I and II follow.

23. Statements : All sticks are plants
All plants are stem.
All stems are amphibians.

Conclusions : I. At least some amphibians are plants
II. All sticks are stems.

24. Statements : Some A is B
Some B is C
No C is D
Some D is E

Conclusions : I. All D being B is possibility
II. All E can never be C.

25. Statements : No hardware is software.
Some software is keyboard
All mouse are software.

Conclusions : I. No mouse is a hardware
II. Some hardware are mouse

26. Statements : All schools are colleges
All schools are hospitals
No hospital is a campus.

Conclusions : I. All colleges are hospitals
II. All schools being campus is a possibility

27. Statements : Some mobiles are cells.
All cells are pagers
No pager is a camera.

Conclusions : I. All cells are camera
II. All mobiles being cells is a possibility.

28. Statements : Some mobiles are cells
ll cells are pagers
No pager is a camera.

Conclusions : I. Some mobiles are definitely not cameras.
II. No mobile is a camera.

29. Statements : All flats are huts.
No hut is building.
All buildings are cottages.

Conclusions : I. Some cottages being flats is a possibility
II. No cottage is a hut.

30. Statements : All men are vertebrates.
Some mammals are vertebrates.

Conclusions : I. All men are mammals
II. All manmmals are men
III. Some vertebrates are mammals
IV.All vertebrates are men

A.Only IV B.Only II C. Only III D. Only I

ANSWER TABLE :

1 D	2 E	3 C	4 E	5 A	6 E	7 B	8 E	9 D	10 A
11 C	12 B	13 E	14 D	15 E	16 D	17 E	18 A	19 C	20 B
21 C	22 A	23 E	24 E	25 A	26 D	27 B	28 A	29 A	30 C