

Syllogism

Syllogism in Verbal Reasoning Questions and Answers: A syllogism is a form of reasoning in which two statements or premises are used to draw a conclusion. It is a fundamental structure in formal logic and is used to demonstrate the validity of an argument. A syllogism typically consists of three parts:

1. **Major Premise:** This is the first statement or premise that sets the general context for the argument.
2. **Minor Premise:** This is the second statement or premise that provides specific information or context within the scope of the major premise.
3. **Conclusion:** This is the logical inference or deduction that follows from the major and minor premises.

Syllogisms follow a specific structure, often referred to as a categorical syllogism, where both premises and the conclusion are expressed in terms of categorical statements using categories like "All," "Some," or "No." These categorical statements fall into one of the four basic forms:

1. **All A are B.**
2. **No A are B.**
3. **Some A are B.**
4. **Some A are not B.**

Syllogism – Sample Problems

Problem 1:

All cats are mammals.

Some dogs are mammals.

Therefore, some dogs are cats.

Answer: Invalid

Explanation: The conclusion of a syllogism must be supported by both premises. While it is true that some mammals are dogs, this does not necessarily mean that all dogs are cats.

Problem 2:

All humans are mortal.

Socrates is human.

Therefore, Socrates is mortal.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. All humans are mortal, and Socrates is human, therefore Socrates must be mortal.

Problem 3:

No birds are fish.

Penguins are birds.

Therefore, penguins are not fish.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. No birds are fish, and penguins are birds, therefore penguins must not be fish.

Problem 4:

Some athletes are runners.

All runners are fast.

Therefore, some athletes are fast.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. Some athletes are runners, and all runners are fast, therefore some athletes must be fast.

Problem 5:

No politicians are honest.

All lawyers are politicians.

Therefore, no lawyers are honest.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. No politicians are honest, and all lawyers are politicians, therefore no lawyers must be honest.

Problem 6:

Some doctors are surgeons.

All surgeons are skilled.

Therefore, some doctors are skilled.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. Some doctors are surgeons, and all surgeons are skilled, therefore some doctors must be skilled.

Problem 7:

All dogs have four legs.

Fido is a dog.

Therefore, Fido has four legs.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. All dogs have four legs, and Fido is a dog, therefore Fido must have four legs.

Problem 8:

No cats are carnivores.

Tigers are cats.

Therefore, tigers are not carnivores.

Answer: Invalid

Explanation: This syllogism is invalid because the conclusion does not logically follow from the premises. While it is true that tigers are cats, this does not necessarily mean that all cats are not carnivores.

Problem 9:

Some artists are painters.

All painters are creative.

Therefore, some artists are creative.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. Some artists are painters, and all painters are creative, therefore some artists must be creative.

Problem 10:

All mammals have lungs.

Whales are mammals.

Therefore, whales have lungs.

Answer: Valid

Explanation: This syllogism is valid because the conclusion logically follows from the premises. All mammals have lungs, and whales are mammals, therefore whales must have lungs.

EXERCISE

Directions (1-5): In each of the following questions two statements are given and these statements are followed by two conclusions numbered (1) and (2). You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

1. Statements:

Some actors are singers. All the singers are dancers.

Conclusions:

1. Some actors are dancers.
2. No singer is actor.
- A. Only (1) conclusion follows
- B. Only (2) conclusion follows
- C. Either (1) or (2) follows
- D. Neither (1) nor (2) follows
- E. Both (1) and (2) follow

2. Statements:

All the harmoniums are instruments. All the instruments are flutes.

Conclusions:

1. All the flutes are instruments.
2. All the harmoniums are flutes.
- A. Only (1) conclusion follows
- B. Only (2) conclusion follows
- C. Either (1) or (2) follows
- D. Neither (1) nor (2) follows
- E. Both (1) and (2) follow

3. Statements:

Some mangoes are yellow. Some tixo are mangoes.

Conclusions:

1. Some mangoes are green.
 2. Tixo is a yellow.
- A. Only (1) conclusion follows
B. Only (2) conclusion follows
C. Either (1) or (2) follows
D. Neither (1) nor (2) follows
E. Both (1) and (2) follow

4. Statements:

Some ants are parrots. All the parrots are apples.

Conclusions:

1. All the apples are parrots.
 2. Some ants are apples.
- A. Only (1) conclusion follows
B. Only (2) conclusion follows
C. Either (1) or (2) follows
D. Neither (1) nor (2) follows
E. Both (1) and (2) follow

5. Statements:

Some papers are pens. All the pencils are pens.

Conclusions:

1. Some pens are pencils.
2. Some pens are papers.

- A. Only (1) conclusion follows
- B. Only (2) conclusion follows
- C. Either (1) or (2) follows
- D. Neither (1) nor (2) follows
- E. Both (1) and (2) follow

Answer Key

- 1. A
- 2. B
- 3. D
- 4. B
- 5. E

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