

# CH 1 SYLLOGISM

## ANSWERS AND EXPLANATIONS

### EXERCISE 1

1. (a) Some hens are fish. (I-Type)



All fish are birds. (A - Type)

$I + A \Rightarrow I$  - type)

"Some hens are birds."

This is Conclusion I.

2. (c) Both the Premises are Particular Affirmative. No Conclusion follows from Particular Premises. Conclusions I and II form Complementary Pair. Therefore, either Conclusion I or II follows.

3. (e) All bats are boys. (A-Type)



All boy are gloves. (A-Type)

$A + A \Rightarrow A$  type Conclusion

"All bats are gloves."

This is Conclusion II.

Conclusion I is Converse of this Conclusion.

4. (b) Some doctors are nurses. (I-Type)



All nurses are patients. (A-Type)

$I + A \Rightarrow I$  -type Conclusion

"Some doctors are patients"

Conclusion II is Converse of this Conclusion.

5. (a) Conclusion I is the conversion of first statement, hence I follows. But II does not follow because  $A + A = A$  i.e. All leaders are good orators but not *vice versa*.

6. (a)  $A + A = A$ ; i.e. All terrorists are human.  
7. (b) I does not follow. But II follows because it is conversion of the first statement.  
8. (a) Statements : All graduates are chairs.



All chairs are tables

Conclusion : All graduates are tables.

( $A + A = A$  Type)

Hence I follows.

Conclusion : Some tables are graduates.

(Conversion)

Hence II does not follows.

9. (e) Statements : Every minister is a student.



Every student is inexperienced.

Conclusion : Every minister is inexperienced.

( $A + A = A$  type)

Hence I follows.

Statement : Every student is inexperienced.

Conclusion : Some inexperienced are students. (Conversion)

Hence II follows.

10. (b) Statement : Some teachers are followers.

Conclusion : Some followers are teachers.

(Conversion)

Hence, II follows.

Since both given statements are I-type, therefore, given Conclusion I does not follow.

11. (d) Statement : Some dedicated souls are angles.

Conclusion : Some angels are dedicated souls.

(Conversion)



- Statement : All social workers are angels  
 Conclusion : Some social workers are angels.  
 (Implication)  
 Some angels are social workers.  
 (Conversion)  
 No mediate inference follows.  
 Hence, no given Conclusions follows.
12. (c) Conversion of statement (b) + Statement (a) gives conclusion III [  $\therefore I + A = I$  ].  
 Hence, III follows but conclusions I and II do not follow.
13. (e) Statement (a) + Statement (b) gives the conclusion "All rats are cars" [  $\therefore A + A = A$  ]  $\Rightarrow$  "Some cars are rats". Hence neither conclusion II nor conclusion III follows. Conclusion I does not follow from statement I since conversion of statement (a) will give the conclusion "Some bells are rats".
14. (e) Conversion of statement (a) gives conclusion II. Hence, conclusion II follows. Again statement (a) + statement (b) gives conclusion III [  $\therefore A + E = E$  ]. Hence, conclusion III follows. Conclusion I follows from conversion of conclusion III. Hence, All follow.
15. (d) Conclusion II follows from conversion of statement (a). Now, statement (b) + conversion of statement (a) gives no conclusion [  $\therefore A + I = \text{no conclusion}$  ]. Hence, conclusions I and III do not follow. But conclusion I and conclusion III make an IE-type complementary pair. Hence either conclusion I or conclusion III follows.
16. (d) Statement (a) + Statement (b) gives no conclusion [  $\therefore I + I = \text{no conclusion}$  ]. Therefore, conclusion I does not follow. Again conversion of statement (b) gives the conclusion "Some rods are lamps". Hence, conclusions II and III do not follow.
17. (b) Statement (a) + Statement (b) gives no conclusion. [  $\therefore A + I = \text{No conclusion}$  ].  
 Hence, conclusion I and conclusion III do not follow independently. But, conclusion I and conclusion III make a complementary pair (IE type). Hence, either I or III follows. Conclusion II does not follow because "All tables are boxes" gives only the following conclusions:
1. Some tables are boxes.  
 2. Some boxes are tables.
18. (e) Statement (a) + Statement (b) gives the conclusion "Some goats are not rooms" [  $\therefore E + A = 0^*$  ]. Thus, conclusions I and II do not follow. Conclusion III follows from statement (b).
19. (d) Statement (a) + Statement (b) gives no conclusion [  $\therefore I + I = \text{No conclusion}$  ]. Hence, conclusion II does not follow. Conclusion I follows from conversion of statement (a). On a similar basis, conclusion III also follows.
20. (c) Conversion of Statement (a) gives the conclusion "Some lions are men". Hence, conclusion II follows [say statement (c)]. Now, Statement (b) + Statement (c) gives no conclusion [  $\therefore A + I = \text{No conclusion}$  ]. Therefore, conclusion I does not follow. Conclusion III does not follow because an A-type statement gives I-type conclusions.
21. (a) Conclusion III follows because Statement (a) + Statement (b) gives the conclusion "All birds are trees" [  $\therefore A + A = A$  ]. "All birds are trees" implies "Some trees are birds". Hence, conclusion I follows. Conclusion II follows from statement (a).

## EXERCISE 2

1. (d) All shoes are pens. (A-type)  
 $\nearrow$   
 Some pens are razors. (I-type)  
 $A + I \Rightarrow \text{No Conclusion}$
2. (c) All the three Premises are Particular Affirmative (I-type).  
 No Conclusion follows from Particular Premises.  
 Conclusion I and II from Complementary Pair.  
 Therefore, either I or II follows
3. (e) All brushes are chocolates. (A-type)  
 $\nearrow$   
 All chocolates are mirrors. (A-type)



A + A ⇒ A-type Conclusion

"All brushes are mirrors"

All brushes are mirrors. (A-type)



All mirrors are tables. (A-type)

"All brushes are tables"

Conclusion I is converse of this Conclusion.

Conclusion II is converse of the second Premise.

4. (b) Some pencils are knives. (I-type)



All knives are papers. (A-type)

I + A ⇒ I-type Conclusion

"Some pencils are papers"

Conclusion II is converse of this Conclusion.

5. (a) Some roofs are figure. (I-type)



All figures are lions. (A-type)

I + A ⇒ I-type Conclusion

"Some roofs are lions."

Some roofs are lion. (I-type)



All lions are goats. (A-type)

I + A ⇒ I(A-type) Conclusion

"Some roofs are goats"

Conclusion I is converse of this Conclusion.

6. (e) Some pens are books (I-Type)



All books are pencils. (A - Type)

I + A ⇒ I-type Conclusion.

"Some pens are pencils."

This is Conclusion II.

All books are pencils. (A - Type)



All pencils are jars. (A - Type)

A + A ⇒ A-type Conclusion.

"All books are jars."

This is Conclusion I.

7. (b) Some spoons are forks. (I-Type)



All forks are plates. (A - Type)

I + A ⇒ I-type Conclusion.

"Some spoons are plates."

This is Conclusion II.

8. (e) All jars are buckets. (A - Type)



All buckets are tanks. (A - Type)

A + A ⇒ A-type Conclusion.

"All jars are buckets."

This is Conclusion I.

Conclusion II is implication of third statement

9. (a) Some flies are folders. (A - Type)



All folders are bags. (A - Type)

I + A ⇒ I-type Conclusion.

"Some files are bags."

This is Conclusion I.

(10-15).

- (i) All petals are trees → Universal Affirmative (A-type).
- (ii) Some days are nights → Particular Affirmative (I-type).
- (iii) No lock is toy → Universal Negative (E-type).
- (iv) Some locks are not toys → Particular Negative



(O-type)

10. (b) All petals are trees. (A-type)



All trees are gardens. (A-type)

A + A  $\Rightarrow$  A-type of Conclusion

"All petals are gardens."

Conclusion III is Converse of it.

Conclusion II is Converse of the second premise.

11. (b) All keys are locks. (A-type)



No lock is toy. (E-type)

A + E  $\Rightarrow$  E-type of Conclusion

"No key is toy."

All bags are toys. (A-type)



No toy is lock. (E-type)

A + E  $\Rightarrow$  E-type of Conclusion

"No bag is lock."

All bags are toys. (A-type)



No toy is key. (E-type)

A + E  $\Rightarrow$  E-type of Conclusion

"No bag is key."

This is Conclusion I.

12. (d) All the three Premises are Particular Affirmative (I-type).

No Conclusion follows from the two Particular Premises.

Conclusions I and III from complementary pair.

Therefore, either I or III follows.

13. (a) Some tyres are wheels. (I-type)



All wheels are buses. (A-type)

I + A  $\Rightarrow$  I-type of Conclusion

"Some tyres are buses."

Conclusion I is Converse of it.

Conclusion II is Converse of the second premise.

14. (b) Some cats are horses. (I-type)



All horses are tigers. (A-type)

I + A  $\Rightarrow$  I-type of Conclusion

"Some cats are tigers."

Conclusion I is Converse of it.

15. (a) All ropes are sticks. (A-type)



Some sticks are hammers. (I-type)

A + I  $\Rightarrow$  No Conclusion

16. (d) Some stones are bricks. (I-type)



Some bricks are stone. (conversion)

All plants are stones.

Some plants are stones. (Implication)

Some stones are plants. (conversion)

No flower is plant.

Some flowers are not plant. (Implication)

No plant is flower. (Conversion)

No flower is plant.

All plants are stones.

Some stones are not

flower. (E + A = O\* type)

Since, II and III form a complementary I-E pair, either of two must follow.

17. (c) All tigers are jungles.

Some tigers are jungles. (Implication)

Some jungles are tigers. (conversion)

No jungle is bird.

Some jungle are not bird. (Implication) (I-type)



No bird is jungle. (conversion)



Some birds are rains.  
 Some rains are birds. (conversion)  
 All tigers are jungles.



No jungle is bird.  
 No tiger is bird.  
 (A + E = E-type)  
 No bird is tiger. (conversion)

Hence III follows.

No jungle is bird.  
 Some birds are rains.  
 Some rains are not jungle.  
 (E + I = O\* type)

Since I and II form a complementary E-I pair,  
 either of two must follow.

(18–22)

18. (b) Some buckets are pots. (conversion)  
 Some bags are buckets. (conversion)  
 Some purses are bags. (conversion)  
 No mediate inference follows.  
 $\therefore$  No given **Conclusions** follows.

19. (d) All glasses are roads. (A-type)

No road is stick. (E-type)  
 No glass is stick. (A + E = E-type)



Some sticks are pens. (I-type)  
 Pens are not glass. (E + I = O\* type)  
 No road is stick. (E-type)



Some sticks are pens.  
 Some pens are not road. (I-type)  
 (E + I = O\* type)

Hence only IV follows.

20. (a) Some ice are ring. (I-type)  
 Some ring are ice. (conversion)  
 Some rings are gold.

Some gold are ring. (conversion) (I-type)



No ring is paint. (E-type)

Some gold are not paint.

(I + E = O-type)

Some ice are ring. (I-type)



No ring is paint. (E-type)

Some ice are not paint.

(I + E = O-type)

No ring is paint.

No paint is ring. (Implication)

Hence none follows.

21. (d) Some shoes are bells.  
 Some bells are shoes. (conversion)  
 No candle is bell. (E-type)



Some bells are shoes. (I-type)

Some shoes are not candle.

(E + I = O\*)

All tables are shoes.

Some tables are shoes. (Implication)

Some shoes are tables. (conversion)

No candle is bell.

No bell is candle. (conversion)

Hence none follow.

22. (c) Some cats are rats.  
 Some rats are cats. (conversion)  
 Some rats are ants.  
 Some ants are rats (conversion)  
 Some ants are flies.  
 Some flies are ants. (conversion)

No mediate inference follows.

Hence, only I and II follow.

23. (a) All books are notes.  
 Some books are notes. (Implication)  
 Some notes are books. (conversion)



Hence I follows.

Some notes are pencils.

No pencil is paper.

Some note are not paper.

(I + E = O type)

Some notes are pencils.

Some pencils are notes. (conversion)

No pencil is paper.

Some pencils are not papers.

(Implication)

No paper is pencil.

(Conversion)

Since III and IV form a complementary I-E pair, either of the two must follow.

24. (c) Some tables are chairs.

Some chairs are tables. (conversion)

Hence, III follows.

No cupboard is table.

Some cupboards are not table.

(Implication)

No table is cupboard. (conversion)

Some chairs are cupboards.

Some cupboards are chairs.

(conversion)

Since, No table is cupboard.

Some cupboards are chairs.

Some chairs are not table.

(E + I = O\* type)

Hence, I follows.

25. (a) No table is fruit.

Some tables are not fruit. (Implication)

No fruit is table. (conversion)

No fruit is window.

Some fruits are not window.

(Implication)

No window is fruit.

(Conversion)

No fruit is window

All windows are chairs.

Some chairs are not fruit.

(E + A = O\* type)

All windows are chairs.

Some windows are chairs.

(Implication)

Some chairs are windows.

(Conversion)

Hence none follows.

26. (d) No man is sky.

Some men are not sky.

(Implication)

No sky is man. (conversion)

No sky is road.

Some skies are not road. (Implication)

No road is sky. (conversion)

Hence II follows.

Some men are roads.

Some roads are men. (conversion)

No sky is man. (E-type)



Some men are roads. (I-type)

Some roads are not sky.

(E + I = O\* type)

No sky is road. (E-type)



Some roads are men. (I-type)

Some men are not sky.

(E + I = O\* type)

Some men are roads. (I-type)



No road is sky. (E-type)

Some men are not sky. (I + E = O type)

Some roads are man. (I-type)



No man is sky. (E-type)

Some roads are not sky.

(I + E = O type)

Hence, only II follows



## EXERCISE 3

1. (c) First and third Premises are Universal Affirmative (A-Type)

Second Premise in Particular Affirmative (I-type)

Fourth Premise is Universal Negative (E-type)

Some garlics are onions (I-type)



All onions are potatoes (A-type)

$I + A \Rightarrow$  I-type Conclusion.

"Some garlics are potatoes."

All onions are potatoes (A-type)



No potato is ginger. (E-type)

$A + E \Rightarrow$  E-type Conclusions.

2. (e) First and second Premises are Particular Affirmative (I-Type)

Third and fourth Premises are Universal Affirmative (A-type)

Some locks are numbers (I-type).



All numbers are letters (A-type).

$I + A =$  I-type Conclusion.

"Some locks are letter."

This is conclusion I.

Some locks are letter (I-type)



All letters are words. (A-type)

$I + A \Rightarrow$  A-type Conclusion.

"Some locks are words. (I-type)

All letters are words. (A-type)

$A + A \Rightarrow$  A-type Conclusion.

"All numbers are words."

This is conclusion III.

Conclusion II is Converse of this Conclusion.

3. (d) Some window are doors. (I-type)



All doors are walls. (A-type)

$I + A =$  I-type Conclusion.

"Some windows are walls."

" This is Conclusion I.

All doors are walls. (A-type)



No wall is roof. (E-type)

$A + E =$  E-type Conclusion. No door is roof."

"Some shelters are not doors."

No wall is roof. (E-type)



All roofs are shelters. (A-type)

"Some shelters are not walls."

4. (e) First and third Premises are Universal Affirmative (A-type).

Second Premises are Particular Affirmative (I-Type)

Fourth Premise is Universal Negative (E-type)

Some jars are pots. (I-type)



All pots are taps. (A-type)

$I + A \Rightarrow$  I-type Conclusion.

"Some jars are taps."



All pots are taps. (A-type)



No tap is tank. (E-type)

A + E = E-type Conclusion.

"No pot is tank."

This is Conclusion I.

5. (a) First and second Premises are Particular Affirmative (I-type).

Third Premise is Universal Negative (E-type)

Fourth Premise is Universal Affirmative (A-type).

Some crocodiles are snakes.



No snake is tortoise. (E-type)

I + E = E-type Conclusion.

"Some crocodiles are not tortoises,"

No snake is tortoise. (E-type)



All tortoises are frogs. (A-type)

E + A = O\*-type Conclusion.

"Some frogs are not snakes."

(6-10) :

- (i) All tables are umbrellas → Universal Affirmative (A-type).
- (ii) Some pens are table → Particulars Affirmative (I-type).
- (iii) No box is bottle → Universal Negative (E-type).
- (iv) Some boxes are not bottles → Particular Negative (O-type)

6. (a) Some pens are tables.



All tables are umbrellas.

I + A ⇒ I - type of Conclusion.

"Some pens are umbrellas".

Conclusion II is Converse of it.

Some umbrellas are sticks.



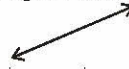
All sticks are caps.

I + A ⇒ I - type of Conclusion.

"Some umbrellas are caps".

Conclusion I is Converse of it.

7. (d) All cheques are notes.



All notes are tyres.

A + A ⇒ A - type of Conclusion.

"All cheques are tyres".

Conclusion III is Converse of it.

All notes are tyres.



All tyres are books.

A + A ⇒ A - type of Conclusion.

"All notes are books".

All tyres are books.



All books are roads.

A + A ⇒ A - type of Conclusion.

"All tyres are rods".

Conclusion I is Converse of it.

All notes are books



All books are rods.

A + A ⇒ A - type of Conclusion.

"All notes are rods".

Conclusion I is Converse of it.

All cheques are tyres.



All tyres are books.

A + A ⇒ A - type of Conclusion.





"All cheques are books".

Conclusion II is Converse of the third Premise.

8. (e) Some lanes are poles.

↙ ↘  
All poles are skies.

$I + A \Rightarrow I$  - type of Conclusion.

"Some lanes are skies".

Some skies are boxes.

↙ ↘  
No box is bottle.

$I + E \Rightarrow O$  - type of Conclusion.

"Some skies are not bottles".

Conclusions I and III form complementary Pair.

Therefore, either I or III follow.

9. (c) Some cars are days.

↙ ↘  
All days are nights.

$I + A \Rightarrow I$  - type of Conclusion.

"Some cars are nights".

Conclusion II is Converse of it.

10. (c) Some cars are days.

↙ ↘  
All days are nights.

$I + A \Rightarrow I$  - type of Conclusion

"Some seeds are trees".

All flowers are trees.

↙ ↘  
All trees are leaves.

$A + A \Rightarrow A$  - type of Conclusion

"All flowers are leaves".

Conclusion III is Converse of it.

Some seeds are trees.

↙ ↘  
All trees are leaves.

$I + A \Rightarrow I$  - type of Conclusion

"Some seeds are leaves".

Conclusion II is Converse of it.

11. (d) Some plates are spoons.

↙ ↘  
All spoons are forks.

$I + A \Rightarrow I$  - type of Conclusion

"Some plates are forks."

Some plates are forks.

↙ ↘  
All forks are bowls.

$I + A \Rightarrow I$  - type of Conclusion

"Some plates are bowls."

This is Conclusion I.

All spoons are forks.

↙ ↘  
All forks are bowls.

$A + A \Rightarrow A$  - type of Conclusion

"All spoons are bowls."

This is Conclusion II.

12. (c) Some books are files.

↙ ↘  
All files are discs.

$I + A \Rightarrow A$  - type of Conclusion

"Some books are discs."

Some discs are boards.

↙ ↘  
All boards are keys.

$I + A \Rightarrow I$  - type of Conclusion

"Some discs are keys."

This is Conclusion III.

Conclusions I and II from Complementary Pair.

Therefore, either I or II follows.



13. (e) Some trains are cars.

No car is scooter.

$I + E \Rightarrow O$  - type of Conclusion

"Some trains are not scooters."

No car is scooter.

All scooters are jeeps.

$E + A \Rightarrow O$  - type of Conclusion

"Some jeeps are not cars."

14. (c) All curtains are pillows.

No pillow is mattress.

$A + E \Rightarrow E$  - type of Conclusion

"No curtain is mattress."

Some mattresses are beds.

All beds are sofas.

$I + A \Rightarrow I$  - type of Conclusion

"Some mattresses are sofas."

This is Conclusion II.

Conclusions I and III form Complement Pair.

Therefore, either I or III follows.

15. (a) Some grains are sprouts.

All sprouts are nuts.

$I + A \Rightarrow I$  - type of Conclusion

"Some grains are nuts."

Conclusion II is Converse of the Conclusion.

All sprouts are nuts.

No nut is fruit.

$A + E \Rightarrow E$  - type of Conclusion

"No sprout is fruit."

Conclusion III is Converse of this Conclusion.

