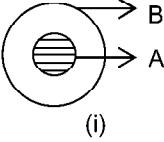
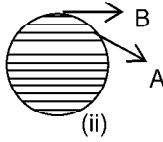
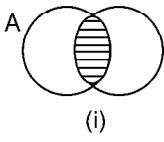
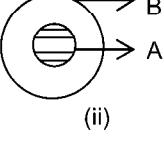
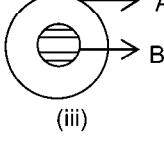
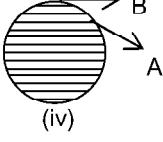
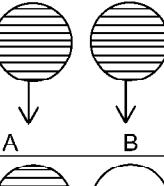
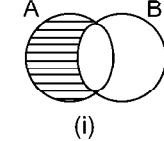
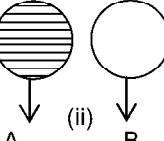
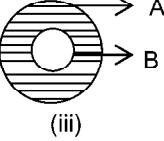


## 11. LOGICAL DEDUCTIONS

### Quantifier                                  Representations using Venn diagram

1) ALL: Eg.: All A's are B's				
2) SOME: Eg.: Some A's are B's	A  B			
3) NO: Eg.: No A is B				
4) SOME, NOT: Eg.: Some A's are not B's	A  B			

Statement	Definitely True	Definitely false	May or may not be true
(1) All A's are B's Some B's are A's	Some A's are B's No B is A	No A is B Some B's are not A's	All B's are A's
(2) Some A's are B's	Some B's are A's	No A is B No B is A	All A's are B's All B's are A's Some A's are not B's Some B's are not A's
(3) No A is B	No B is A Some A's are not B's Some B's are not A's	Some A's are B's Some B's are A's All A's are B's All B's are A's	_____
(4) Some A's are not B's	_____	All A's are B's Some A's are B's Some B's are A's	Some B's are not A's No A is B No B is A All B's are A's

### Guidelines to minimise the number of diagrams:

- (i) **BASIC DIAGRAM** represents the least possible situation for the given set of statements. If a positive conclusion is true for **BASIC DIAGRAM**, then it will be true for all **ALTERNATE Diagrams**.
- (ii) If a positive conclusion or a negative conclusion is false for **BASIC DIAGRAM**, then it can be said that the conclusion does not follow the given statements.
- (iii) If a negative conclusion is true for **BASIC DIAGRAM**, it may or may not be true for **ALTERNATE Diagrams**. If we could able to draw an **ALTERNATE Diagram** which proves the conclusion as false then it cannot be taken as a conclusion.

Note: In drawing an **ALTERNATE Diagram**, given statements should not get disturbed.

- (iv) **NO** and **Some** statements are complementary to each other. Similarly **SOME NOT** and **ALL** statements are complementary to each other.

Eg: **No apple is a mango and some apples are mangoes.**

**Some apples are not mangoes and all apples are mangoes.**

### **Exercise - 1**

**Directions for questions 1 to 20:** Select the alternative that logically follows from the two given statements.

1. All cups are pages. All pages are balls.  
(1) All balls are cups. (2) All cups are balls.  
(3) No cups are balls. (4) Both (1) and (2)
2. All dogs are elephants. Some elephants are cats.  
(1) Some dogs are cats. (2) No dogs are cats.  
(3) All dogs are cats. (4) None of the above
3. No car is a bus. No bus is a truck.  
(1) No truck is a car. (2) No car is a truck.  
(3) Both (1) and (2) (4) None of the above
4. All stones are leaves. No leaves are deposits.  
(1) All stones are deposits.  
(2) few stones are deposits.  
(3) No stone are deposits. (4) None
5. Many fathers are brothers. All brothers are sisters.  
(1) No father is a sister.  
(2) Some fathers are not sisters.  
(3) Many fathers are sisters.  
(4) Both (2) and (3)
6. All CDs are DVDs. Many CDs are empty.  
(1) Some CDs are not empty.  
(2) All CDs are empty.  
(3) Some DVDs are empty.  
(4) None of the above
7. Some cooks are plates. All cooks are spoons.  
(1) Some cooks are spoons.  
(2) Some plates are not spoons.  
(3) Both (1) and (2)  
(4) None of the above
8. Some Zens are Santros. Some Zens are Altos.  
(1) Some Santros are Altos.  
(2) Some Zens are not Altos.  
(3) Both (1) & (2)  
(4) None of the above
9. Some pens are pencils. All pencils are costly.  
(1) No pens are costly.  
(2) Some pens are costly.  
(3) All pens are costly.  
(4) None of the above
10. Some watches are shoes.  
Some shoes are catches.  
(1) Some watches are not catches.  
(2) No watch is a catch.  
(3) Some watches are catches.  
(4) None of the above
11. No apple is a mango.  
All bananas are mangoes.  
(1) All apples are mangoes.  
(2) Some apples are mangoes.  
(3) No apple is a banana.  
(4) None of the above
12. Some forms are books.  
All books are made of paper.  
(1) Some forms are made of paper.  
(2) Some forms are not made of paper.  
(3) No forms are made of paper.  
(4) None of the above
13. Some kids are not fans.  
All kids are made of paper.  
(1) Some fans are made of paper.  
(2) Some fans are not made of paper.  
(3) Some papers are not fans.  
(4) None of the above
14. No cars are fair. Some bikes are fair.  
(1) No cars are bikes. (2) Some cars are bikes.  
(3) All bikes are cars. (4) None of the above
15. All toffees are chocolates.  
Some toffees are not biscuits.  
(1) Some chocolates are not biscuits.  
(2) Some toffees are biscuits.  
(3) No toffees are biscuits.  
(4) Both (1) and (2)
16. Some books are clocks.  
No dock is a clock.  
(1) Some books are not docks.  
(2) Some books are not clocks.  
(3) Some docks are not books.  
(4) Both (1) and (3)
17. Some MBAs are MCAs.  
All MCAs are MDs.  
(1) Some MBAs are not MDs.  
(2) Some MBAs are MDs.  
(3) Both (1) and (2) (4) None of the above
18. Some socks are shorts. No shorts are shoes.  
(1) Some socks are shoes.  
(2) Some socks are not shoes.  
(3) Both (1) and (2) (4) None of the above
19. All shoes are socks.  
Some shoes are not fans.  
(1) Some shoes are fans.  
(2) Some socks are not fans.  
(3) No shoes are fans.  
(4) None of the above

20. Some radios are bulbs.  
 No bulbs are fans.  
 (1) No radio is a fan.  
 (2) Some radios are fans.  
 (3) Some radios are not fans.  
 (4) None of the above
27. Statements:  
 1. Some keys are nuts. 2. Some nuts are locks.  
 Conclusions:  
 I. Some keys are locks.  
 II. None of the keys is a lock.

**Directions for questions 21 to 30:** In each of these questions, there are two statements followed by two conclusions I and II. You have to take the two given statements to be true even if they seem to be at variance from commonly known facts and decide which of the given conclusions logically follows from the two given statements disregarding commonly known facts.

Mark your answer as

- (1) if only conclusion I follows.
- (2) if only conclusion II follows.
- (3) if either I or II follows.
- (4) if neither I nor II follows.

21. Statements:  
 1. Some cars are cycles.  
 2. Some cycles are scooters.  
 Conclusions:  
 I. Some scooters are cars.  
 II. Some scooters are cycles.

22. Statements:  
 1. Some men are cats. 2. All cats are dogs.  
 Conclusions:  
 I. All dogs are men. II. All men are dogs.

23. Statements:  
 1. All pens are papers.  
 2. Some papers are books.  
 Conclusions:  
 I. Some pens are books.  
 II. No pen is book.

24. Statements:  
 1. All fans are chairs. 2. All bulbs are chairs.  
 Conclusions:  
 I. No bulb is fan. II. Some bulbs are fans.

25. Statements:  
 1. Some stems are leaves.  
 2. All leaves are buds.  
 Conclusions:  
 I. All buds are leaves. II. Some buds are stems.

26. Statements:  
 1. All jacks are cracks.  
 2. Some cracks are crooks  
 Conclusions:  
 I. Some jacks are crooks.  
 II. Some crooks are cracks.

28. Statements:  
 1. All kings are soldiers.  
 2. All soldiers are dukes.  
 Conclusions:  
 I. All dukes are Kings. II. All soldiers are Kings.
29. Statements:  
 1. Some colours are walls.  
 2. No wall is paint.  
 Conclusions:  
 I. Some colours are not walls.  
 II. Some colours are not paints.
30. Statements:  
 1. Some guests are friends.  
 2. Some guests are enemies.  
 Conclusions:  
 I. Some friends are guests.  
 II. No friends are guests.

### Exercise – 2

**Directions for questions 1 to 15:** In each question below, some statements are given which are followed by some conclusions. You have to take the given statements to be true, even if they seem to be at variance from the commonly known facts, and then decide which of the conclusion(s) logically follow(s) from the given statements, disregarding commonly known facts.

1. Statements: All A's are B's.  
 All B's are C's.  
 Conclusions: I. All A's are C's.  
 II. All C's are A's.  
 III. Some B's are A's.  
 IV. Some B's are not A's.  
 (1) Only I & IV follow (2) Only III & IV follow  
 (3) Only I & III follow (4) All follow  
 (5) None of these
2. Statements : All engineers are boys.  
 All boys are illiterate.  
 Conclusions : I. All engineers are illiterate.  
 II. Some illiterate boys are engineers.  
 III. Some literate are boys.  
 IV. All engineers are not boys.  
 (1) Only I follows (2) Only I and II follow  
 (3) Only I, II and III follow (4) Only II, III and IV  
 (5) None of these

3. Statements : All flowers are pencils.  
All pencils are erasers.  
Conclusions : I. All flowers are erasers.  
II. All erasers are flowers.  
III. Some pencils are not flowers.  
IV. Some erasers are not pencils.  
(1) Only I, III and IV follow (2) Only I follows  
(3) Only II and III follow (4) All follow  
(5) None follows
4. Statements : All birds are doctors.  
All singers are birds.  
Conclusions : I. All singers are not doctors.  
II. Some doctors are not singers.  
III. Some doctors are singers.  
IV. Some singers are doctors.  
(1) Only I and III follow (2) Only III follow  
(3) Only III and IV follow (4) Only I and II follow  
(5) None of these
5. Statements : All road are wheels.  
All wheels are pens.  
Conclusions : I. All road are pens.  
II. All pens are road.  
III. Some wheels are roads.  
IV. Some pens are roads.  
(1) Only I, III and IV follow  
(2) Only I and III follow  
(3) Only I and IV follow  
(4) Only II, III and IV follow  
(5) None follows
6. Statements : Some mugs are not tubs.  
All jugs are tubs.  
All tubs are jugs.  
Conclusions : I. Some jugs are mugs.  
II. Some mugs are not jugs.  
III. Some tubs are jugs.  
(1) Only I follows (2) Only II follows  
(3) Only III follows (4) Only II and III follow  
(5) None follows
7. Statements : All books are bags.  
No bag is a notebook.  
All notebooks are pencils.  
Conclusions : I. No book is a notebook.  
II. No pencil is a book.  
III. Some pencils are notebooks.  
IV. Some bags are books.  
(1) Only I follows (2) Only III follows  
(3) Only IV follows (4) Only I, III and IV follow  
(5) Only III and IV follow
8. Statements : Some cats are not dogs.  
All cats are rats.  
No rat is pig.  
Conclusions : I. No cat is pig.  
II. Some rats are not dogs.  
III. No pig is rat.
9. Statements : All fans are switches.  
Some switches are of silver.  
No switch is of gold.  
Conclusions : I. No fan is of silver.  
II. Some silver are gold.  
III. No silver is of gold.  
(1) Only I follows (2) Only II follows  
(3) Only II and III follow (4) Only I and II follow  
(5) None follows
10. Statements : Sudha is tall.  
No tall person is fair.  
All fair people are fat.  
Conclusions : I. Sudha is not fair.  
II. All the fat people are fair.  
III. Sudha is dark.  
(1) Only I follows (2) Only III follows  
(3) Only II follows (4) Only II and III follow  
(5) None follows
11. Statements : Some mangoes are sweet.  
Apple is a mango.  
Some apples are sweet.  
Conclusions : I. Some sweet things are Apple.  
II. Some sweet things are mangoes.  
III. Some mangoes are apple.  
(1) Only I follows (2) Only II follows  
(3) Only II and III follow (4) All follow  
(5) None of these
12. Statements : All males are children.  
All children are females.  
No female is fair.  
Conclusions : I. All males are females.  
II. Some females are males.  
II. No male is fair.  
(1) Only I follow (2) Only II follows  
(3) Only II and III follow (4) All follow  
(5) None of these
13. Statements : All dogs are cats.  
All cats are parrot.  
All parrot are pigs.  
Conclusions : I. All dogs are parrot.  
II. Some parrot are dogs.  
III. All pigs are cats.  
(1) Both I and II follow (2) Only I follows  
(3) Only III follows (4) Only II and III follow  
(5) None of these
14. Statements : All rupees are coins.  
All coins are gold.  
No gold is pure.  
Conclusions : I. All rupees are gold.

- II. No rupees are gold.  
 III. No coin is pure.
- (1) Only I and III follow    (2) Only II follows  
 (3) Only III follows        (4) Only II and III follow  
 (5) None follows
15. Statements : All carpenters are hard workers.  
 All hard workers are slow.  
 No soft is slow.  
 Conclusions: I. All carpenters are slow.  
 II. Some carpenters are slow.  
 III. No hard worker is soft.
- (1) Only I follow            (2) Only I and III follow  
 (3) Only II follows        (4) Only II and III follow  
 (5) None of these
- Directions for questions 16 to 20:** Find the group or groups in which the third statement logically follows the first two statements.
16. A. Every cot is bed.  
 B. Some beds are pillows.  
 C. Several pillows are not beds.  
 D. A lot of cots are not pillows.  
 E. Many cots are pillows.  
 F. No cot is a pillow.  
 (1)ADF    (2)AEC    (3)ADC    (4)AEB
17. A. Every student is athletic.  
 B. Every student is a child.  
 C. Few children are athletic.
- D. Many girls are children.  
 E. Most children are not athletic.  
 F. A lot of students are girls.  
 (1) BAD    (2) BAE    (3) CAB    (4) BFD
18. A. Any pen is pencil.  
 B. Any pen is a child.  
 C. Many children are pencils.  
 D. Some bats are children.  
 E. Few children are not pencils.  
 F. Many pens are bats.  
 (1)BFD    (2) BAD    (3) BAE    (4) AEB
19. A. Any apple is a mango.  
 B. All mangoes are guavas.  
 C Some guavas are mangoes.  
 D. No apples are guavas.  
 E. Many apples are guavas.  
 F. Any apple is a guava.  
 (1)ABD    (2) CDA    (3) AFB    (4) ABF
20. A. No table is a mat.  
 B. All tables are chairs.  
 C. All chairs are mats.  
 D. Some benches are chairs.  
 E. Few chairs are not mats.  
 F. Some tables are not mats.  
 (1)BEF    (2) BAE    (3) BDF    (4) CDB

Logical Deductions:Exercise-1												Logical Deductions:Exercise-2							
1	2	6	3	11	3	16	1	21	2	26	2	1	3	6	4	11	4	16	4
2	4	7	1	12	1	17	2	22	4	27	3	2	2	7	4	12	4	17	4
3	4	8	4	13	3	18	2	23	3	28	4	3	2	8	4	13	1	18	1
4	3	9	2	14	4	19	2	24	3	29	2	4	3	9	5	14	1	19	4
5	3	10	4	15	1	20	3	25	2	30	1	5	1	10	1	15	5	20	2