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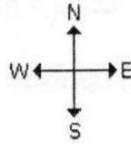
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DIRECTION

Direction is the measurement of position of one object with respect to another and displacement is the minimum distance between the starting point and final point of an object.

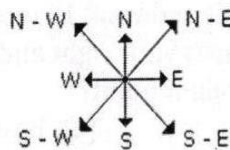
Main Direction

There are four main Directions - East, West, North and South as shown below:



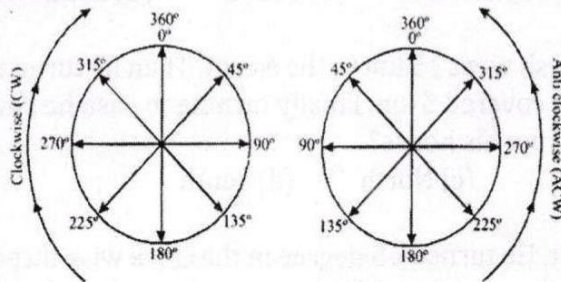
Cardinal Direction

A direction between two main directions is called cardinal direction or sub direction, i.e. North-East (N-E), North-West (N-W), South-East (S-E), and South-West (S-W) as shown below:



Angle of Movement

- (i) Movement towards the right is called clockwise (CW) movement
- (ii) Movement towards the left is called anti-clockwise (ACW) movement



PRACTICE EXERCISE

1. A is 40m south west of B. C is 40 m south-east of B. Then, C is in which Direction of A?
(a) East (b) West (c) North-east (d) South
2. Gaurav walks 20 metres towards North. He turns left and walks 40 metres. He again turns left and walks 20 metres further; he moves 20 metres after turning to the right. How far is he from his original position?
(a) 20 metres (c) 50 metres
(b) 30 metres (d) 60 metres
3. My friend and I started walking simultaneously towards each other from two places 100 metre apart. After walking 30 metre, my friend turns left and goes 10 metre, then he turns right and goes 20 metre and then turns right again and comes back to the road on which he had started. If we walk with the same speed. What is the distance between us at this point of time?

14. You go north, turn right, then right again and then go to the left. In which direction are you now?

- (a) North (b) South (c) East (d) West

15. Ahmedabad is to the southwest of Bangalore, Chennai is to the east of Ahmedabad and southeast of Bangalore and Delhi is to the north of Chennai in line with Ahmedabad-Bangalore. In which direction of Bangalore is Delhi located?

- A. South B. Southwest C. North D. Northeast E. East

ANSWER

1. (a) 2. (d) 3. (b) 4. (c) 5. (a) 6. (d) 7. (d) 8. (b) 9. (c) 10. (d) 11. (b)
12. (b) 13. (d) 14. (c) 15. (d)

CODING & DE-CODING TEST

1. CAT=24 BAT=23 RAT=___
(a) 39 (b) 48 (c) 84 (d) 15
2. CAT=48 BAT=46 RAT=___
(a) 87 (b) 37 (c) 78 (d) None
3. CAT =84 BAT=64 RAT=___
(a) 87 (b) 78 (c) 98 (d) 33
4. CAT 32 BAT=24 RAT=___
(a) 65 (b) 56 (c) 79 (d) 33
5. CAT=60 BAT= 40 RAT=___
(a) 603 (b) 360 (c) 932 (d) 117
6. CAT= 120 BAT= 80 RAT=___
(a) 360 (b) 720 (c) 920 (d) done
7. CAT= 06 BAT = 04 RAT=___
(a) 30 (b) 19 (c) 20 (d) Can't be determine
8. CAT= 06 BAT=04 RAT=___
(a) 36 (b) 28 (c) 15 (d) 29
9. CAT=06 BAT=04 RAT=___
(a) 09 (b) 33 (c) 06 (d) 51
10. CAT=06 BAT=04 RAT=___
(a) 18 (b) 36 (c) 15 (d) 19
11. CAT= 63 BAT=42 RAT=
(a) 378 (b) 783 (c) 778 (d) 117
12. CAT= 80 BAT=60 RAT=___
(a) 803 b. 113 c. 380 d. 119
13. CAT=01 BAT=01 RAT=___
(a) 01 (b) 02 (c) 3 (d) 4
14. PET=04 XAL= 02 PGD=___
(a) 28 (b) 33 (c) 27 (d) 35
15. PQR= OPQ ZTS= YSR SPB=___
(a) ROA (b) AAR (c) NOA (d) RHH
16. XYZ= YXA RST=SRU GPB=___
(a) HOC (b) HHH (c) SPQ (d) RAT
17. COMPUTER=RETUPMOC
ENCOUNTER= RETNUOCNE
ENLARGE=___
(a) EGRALNE (b) EGRLANE
(c) GERLAE (d.) EGRAEN
18. NDA= ZWM SDC= XWH FLAME=___
(a) VNZOU (b) UOZNY (c) OUNZY (d) UONZY
19. GOD= TLW SOME= HLNV SHE=___
(a) VSH (b) SHV (c) HSV (d) none
20. AT=25 TAB=45 TAC=___
(a) 65 (b) 45 (c) 44 (d) 95
21. GO=32 SHE=49 SOME=___
(a) 56 (b) 63 (c) 49 (d) 119
22. RATZ=61 EFGH!=52 EFGH=___
(a) 16 (b) 61 (c) 19 (d) 43
23. PALAM=34 SANTACRUZ=___
(a) 114 (b) 123 (c) 213 (d) 312
24. AX4= D24Z BP3= C16Y RA9=___
(a) I11 (b) O11 (c) A19 (d) None
25. RATE= 06 EASE=18 ZAEA=___
(a) 21 (b) 42 (c) 43 (d) 34

ANSWERS

- | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. (a) | 2. (c) | 3. (a) | 4. (b) | 5. (b) | 6. (b) | 7. (d) | 8. (a) | 9. (a) |
| 10. (a) | 11. (a) | 12. (c) | 13. (a) | 14. (a) | 15. (a) | 16. (a) | 17. (a) | 18. (a) |
| 19. (c) | 20. (a) | 21. (a) | 22. (a) | 23 (a) | 24. (a) | 25. (a) | | |

PROBLEM ON RANKS

Ranking means arranging a set of objects/persons from the top and the bottom or from the right and the left, as per the given relation between them. It deals with the problem related to the arrangement of the persons/ objects in ascending/ descending order based on different parameters like height, weight, age, salary etc and determine the position of person/object in row/queue.

PRACTICE EXERCISE

Q1. Arun rank is twelve in a group of forty six students. What will be his rank from the last?

- a. 16th b. 17th c. 19th d. None

Q2. In a line of boys, Ganesh is 12th from the left and Rajan is 15th from the right. They interchange their positions. Now Rajan is 20th from the right. What is the total number of boys in the class?

- a. 30 b. 29 c. 32 d. 31

Q3. In a row of students, Ramesh is 9th from the left and Suman is 6th from the right. When they both interchange their position then Ramesh will be 15th from the left. What will be the position of Suman from the right?

- a. 12th b. 13th c. 15th d. 6th

Q4. John ranked 21st in a group of fifty-one students. What will be his rank from the end?

- a. 30th b. 32nd c. 20th d. 31st e. 21st

Q5. Pravesh ranked thirteen from the top and twenty six from the bottom among those who have passed in the annual examination in a class. It six students have failed in the annual examination. How many students appeared?

- a. 45 b. 38 c. 44 d. 50 e. None of these

Q6. Sita is eleventh from either side of a row of girls. How many girls are there in that row?

- a. 19 b. 20 c. 21 d. 22 e. 23

Q7. In a class, Ajay is 16th in rank from the top and 21st from the bottom. How many students are there in the class?

- a. 34 b. 35 c. 36 d. 37 e. None of these

Q8. Chanchan and Pravesh are ranked 13 and 14th respectively in a class of 23. What are their ranks from the last respectively?

- a. 10th: 11th b. 11th : 12th c. 11th: 10th d. None of these

Q9. If you count 21 letters in the English alphabet from the end, 20 letters from the beginning: which letter will exactly appear in the middle of the sequence thus formed?

- a. N b. L c. K d. M

ANSWERS

1(d) 2(d) 3(a) 4(d) 5(c) 6(c) 7(c) 8(c) 9(d)

SITTING ARRANGEMENT

We have to draw a rough diagram to understand the sitting arrangement - let's suppose B is sitting to the right of A, and then we will draw



If it is given

C is sitting second to the right of A, and then we will draw

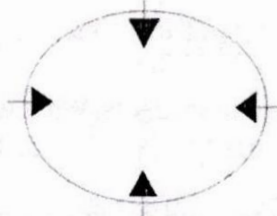


If it is given

D is sitting third to the right of A, and then we will draw



TYPE I: CIRCULAR ARRANGEMENT



In circular sitting arrangement, some conditions are given. We have to follow those conditions and place the required person accordingly in a circular manner. In circular sitting arrangement, we can get question based on

- (a) Persons are facing inside the circle.
- (b) Persons are facing outside the circle.
- (c) Some persons are facing inside and some are facing outside the circle.

Question Study the given information carefully and answer the following questions.

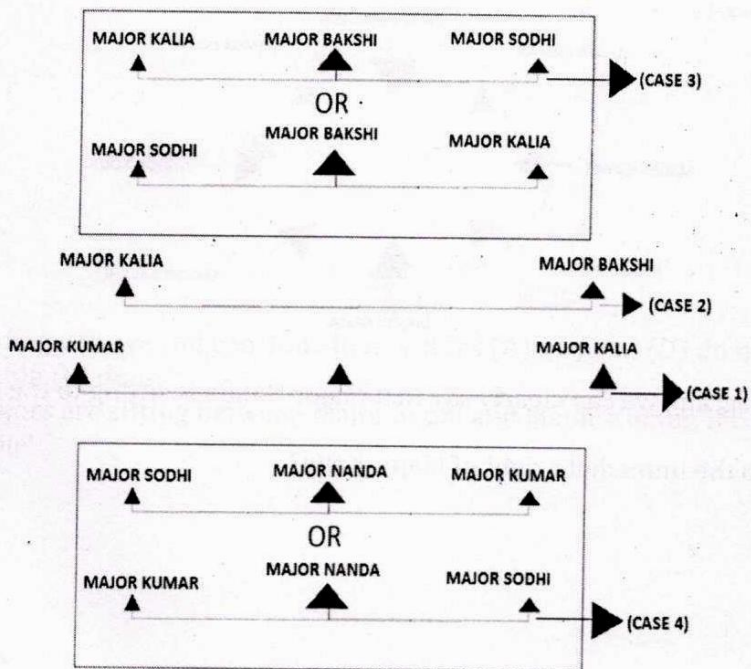
Six army majors are sitting around a circular table and discussing about stopping infiltration across the border. Major Bakshi is sitting between Major Kalia and Major Sodhi. Major Kalia is sitting immediate left of Major Bakshi. Major Kumar is sitting second to the left of Major Kalia. Major Nanda is sitting between Major Kumar and Major Sodhi.

1 - what is the position of Major Batra?

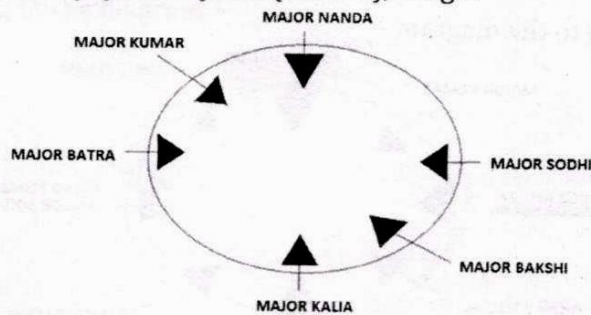
- A - Major Batra is sitting between Major Kumar and Major Kalia.
- B - Major Batra is sitting to the left of Major Kalia.
- C - Major Batra is sitting to the immediate right of Major Kumar.
- D - All the above are true.

Answer - Option D

Explanation -



By applying (CASE 1), (CASE 2), (CASE 3) and (CASE 4), we get



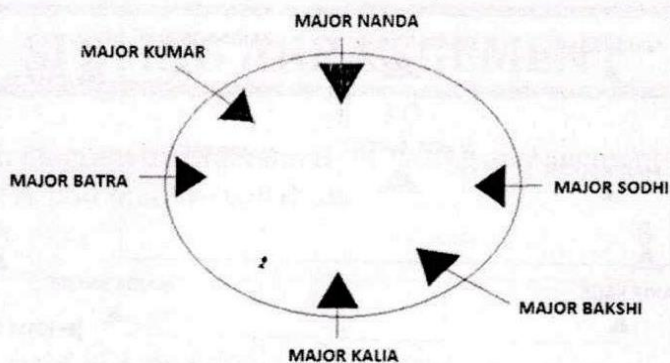
All the options (A),(B) and (C) satisfy our condition. Therefore option (D) is correct.

2 - Who is sitting to the immediate left of Major Kumar?

- A - Major Bakshi
- B - Major Batra
- C - Major Nanda
- D - Major Sodhi

Answer - Option C

Explanation - According to the diagram -



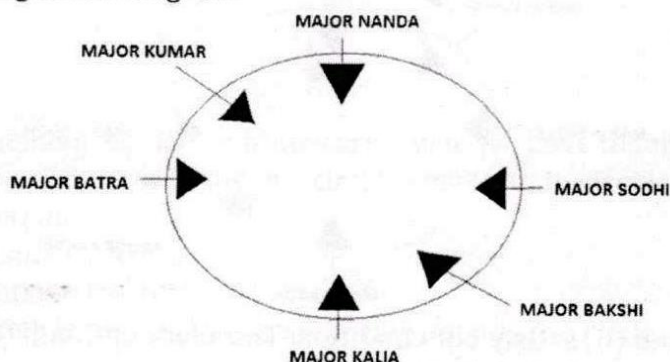
By observing the diagram, we can clearly say that Major Nanda is sitting to the immediate left of Major Kumar.

3 - Who is sitting to the immediate right of Major Kalia?

- A - Major Nanda
- B - Major Kumar
- C - Major Kalia
- D - Major Bakshi

Answer - Option D

Explanation - According to the diagram -



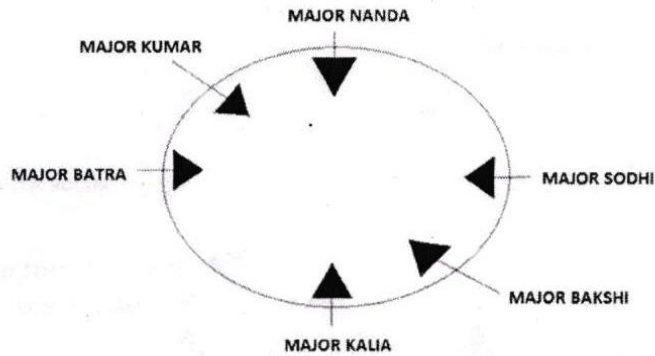
By observing the diagram, one can easily conclude that Major Bakshi is sitting to the immediate right of Major Kalia.

4 - Which of the following statement is true?

- A - Major Sodhi is sitting second to the left of Major Bakshi.
- B - Major Kalia is sitting between Major Nanda and Major Kumar.
- C - Major Batra is sitting to the left of Major Kalia.
- D - Major Nanda is sitting to the left of Major Kalia.

Answer - Option C

Explanation - According to the diagram -



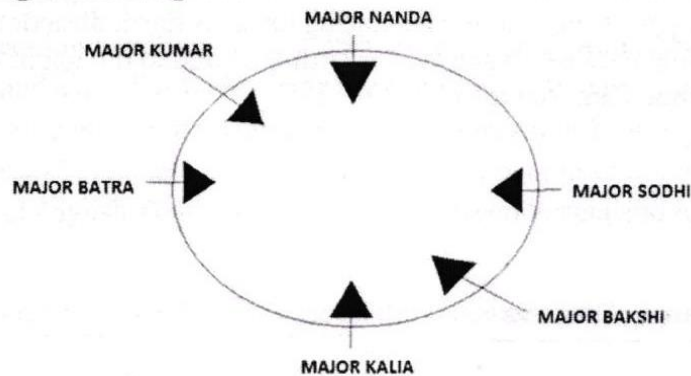
By observing the diagram, we can conclude that options (A), (B) and (D) do not satisfy the condition. But option (C) does.

5 – How many Majors are sitting between Major Sodhi and Major Kumar, if counted in clockwise direction?

- A – Six
- B – Two
- C – Three
- D – Five

Answer – Option C

Explanation – According to the diagram –



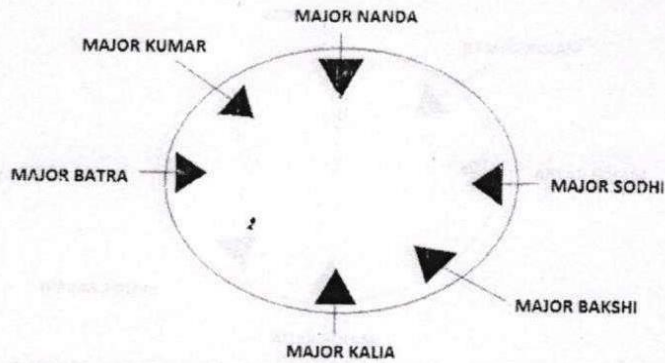
Major Bakshi, Major Kalia and Major Batra are the three majors sitting between Major Sodhi and Major Kumar.

6 – What is Major Batra position with respect to Major Sodhi?

- A – Second to the left.
- B – Immediate Right.
- C – Fourth to the Right.
- D – Third to the left.

Answer – Option D

Explanation – According to the diagram



By observing the diagram, we can conclude that Major Bakshi is sitting to the immediate left of Major Sodhi. Major Kalia is sitting to the second left of Major Sodhi and Major Batra is sitting third to the left of Major Sodhi. So, our required answer is option (D).

TYPE II : LINEAR SITTING ARRANGEMENT

In a linear sitting arrangement, persons are sitting in a line or row facing north or south direction. Here also some conditions are given on the basis of which we have to get our required answer.

Example

Question – Study the given information carefully and answer the following questions.

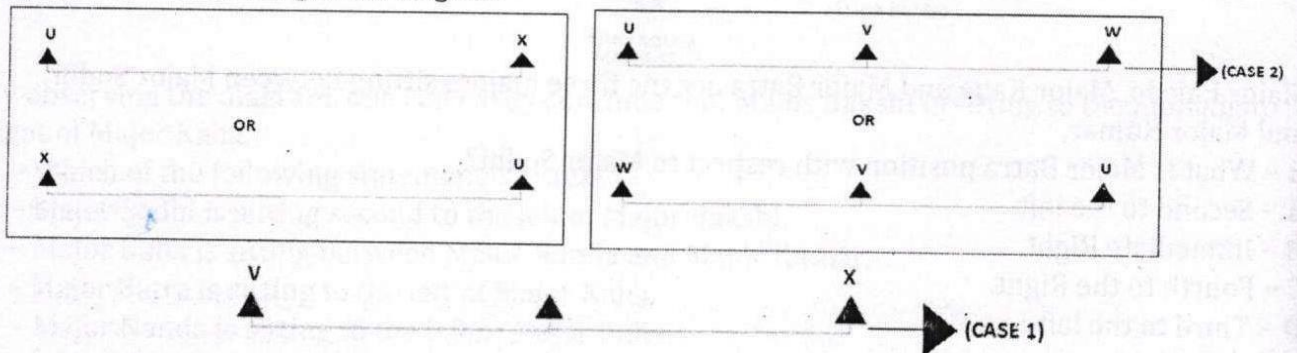
Four friends U, V, W and X are sitting in a row and facing towards north direction. U and X are sitting at two extreme ends. V is sitting between U and W. V is sitting second to the left of X.

1 – Who is sitting to the immediate right of V?

- A – X
- B – U
- C – W
- D – None of these

Answer – Option C

Explanation – According to the diagram



By applying (CASE 1) and (CASE 2), we get



From the diagram, it is clear that W is sitting immediate right of V.

2 – Who is sitting to the immediate left of X?

- A - W
- B - U
- C - V
- D - None of these

Answer -

Explanation - According to the diagram -



PRACTICE EXERCISE

Direction: Sidhu, Chinu, Partha, Verma, Nitish, Keshab, Amit and Rashmi are sitting around a circle facing the centre. Nitish is third to the right of Amit who is not an immediate neighbor of either Partha or Rashmi. Partha is second to the left of Rashmi who is third to the left of Sidhu. Chinu is fourth to the right of Rashmi.

Q 1 - Which of the following pairs is the first person sitting to the immediate left of the second person?

- A. Verma, Sidhu
- B. Keshab, Partha
- C. Nitish, Partha
- D. Data inadequate

Direction: Nine bus association members Gudu, Rama, Verma, Pratik, Amit, Chaitanya, Aayush, Chirag and Dhruv are sitting around a circular table facing the centre. Only two people sit between Pratik and Verma. Pratik sits second to the right of Chaitanya. Neither Chirag nor Amit is an immediate neighbor of Verma or Pratik. Chirag is an immediate neighbor of Amit. Two people sit between Amit and Gudu. Gudu sits third to the left of Aayush. Only one person sits between Verma and Amit. Verma sits second to the right of Rama.

Q 2 - According to the arrangements, which bus association member sits between Chaitanya and Pratik?

- A. Amit
- B. Gudu
- C. Dhruv
- D. Rama

Direction: Seven Bank PO officers H, I, J, K, M, N, O are sitting in a straight line facing north direction.

- (1) Total three number of Bank PO officers sits between H and N.
- (2) Both N and H Bank PO officer sit at extreme ends.
- (3) Total two number of Bank PO officers sit between H and O.
- (4) M is not an immediate neighbor of H or N.
- (5) I sits third to the right of M.
- (6) I and H both are not immediate neighbors.
- (7) M is also not an immediate neighbor of J.

Q 3 - Which of the following statement is true?

- A - M is an immediate neighbor of J.
- B - K is second to the left of I.
- C - H is second to right of J.
- D - There are five Bank PO officers sitting between J and I.

BLOOD RELATION

<i>Relationship</i>	<i>Terms Used</i>
Father's son or mother's son	Brother
Father's daughter or mother's daughter	Sister
Mother's brother (younger or elder)	Maternal Uncle
Father's brother (younger or elder)	Uncle (Paternal)
Father's sister (younger or elder)	Aunt
Mother's sister (younger or elder)	Aunt
Son's wife	Daughter-in-law
Daughter's husband	Son-in-law
Sister's husband	Brother-in-law
Husband's brother or wife's brother	Brother-in-law
Brother's wife	Sister-in-law
Husband's sister or wife's sister	Sister-in-law
Husband's father or wife's father	Father-in-law
Husband's mother or wife's mother	Mother-in-law
Brother's son or sister's son	Nephew
Brother's daughter or sister's daughter	Niece
Uncle's daughter or aunt's daughter	Cousin
Uncle's son or aunt's son	Cousin
Father's father or mother's father	Grandfather
Father's mother or mother's mother	Grandmother
Father of grandfather or father of grandmother	Great grandfather
Mother of grandfather or Mother of grandmother	Great grandmother

PRACTICE EXERCISE

1. If B's mother is A's mother's daughter, how is A related to B?

(a) Father	(b) Maternal uncle
(c) Brother	(d) Paternal uncle

2. If the uncle of the father of Rani is the grandson of the father of Anup and Anup is the only son of his father, then what is the relation of Anup with Rani ?

(a) Maternal uncle	(b) Great-grandfather
(c) Grandfather	(d) Uncle

3. If X and Y are brothers; Z is sister of X; P is brother of Q; and Q is daughter of Y. Then who is the uncle of P? (UPSC CPF Asst. Comm. 2008)
- (a) Z (b) X (c) Q (d) Y
4. Q is the son of P, S is the son of Q. U is the mother of R, T is the spouse of Q, P is the father of R but R is not his son. V is the spouse of R. Which one of the following statements is not correct? (UPSC CPF Asst. Comm. 2004)
- (a) S is the grandson of P (b) S is the grandson of U
(c) V is the son-in-law of P (d) V is the son of U
5. Jai's father is Vijay's father's only son and Vijay has neither a brother nor a daughter. What is the relationship between Jai and Vijay?
- (a) Uncle-Nephew (b) Father-Daughter
(c) Father-Son (d) Cousin
6. Pointing towards a person a man said to a woman, "His mother is the only daughter of your father". How is the woman related to the person?
- (a) Daughter (b) Sister
(c) Mother (d) Wife
7. Introducing a man, a woman said "His wife is the only daughter of my father". How is that man related to the woman?
- (a) Brother (b) Father-in-law
(c) Maternal Uncle (d) Husband
8. Showing the man receiving the prize, Saroj said "He is the brother of my uncle's daughter". Who is the man to Saroj?
- (a) Son (b) Brother-in-law
(c) Cousin (d) Uncle
9. A man pointing to a photograph says "the lady in the photograph is my nephew's maternal grandmother". How is the lady in the photograph related to the man's sister who has no other sister?
- (a) Cousin (b) Sister-in-law
(c) Mother (d) Mother-in-law
10. While introducing Ajay, Rajeev says that his father is the only son of my mother. How is Rajeev related to Ajay?
- (a) Uncle (b) Maternal
(c) Brother (d) Father

11. Introducing Asha to guests, Bhaskar said "Her father is the only son of my father." How is Asha related to Bhaskar?

- (a) Daughter (b) Mother
(b) Sister (d) Aunt

12. A and B are young ones of C. If C is the father of A, but B is not the son of C. How are B and C related?

- (a) Niece and Uncle (b) Daughter and Father
(c) Niece and Uncle (d) Daughter and Mother

13. A told B that C is his father's nephew. D is A's cousin but not the brother of C. What relationship is there between D and C?

- (a) Cousin (b) Sister
(c) Aunt (d) Mother

14. A is the husband of B, C is the daughter of B, D is the sister of B, E is the son of D. What is the relationship of C to E?

- (a) Aunt (b) Niece (c) Cousin (d) Sister-in-law

15. Pointing to Sudha, Ranjan said, 'Her mother's only daughter is my mother'. How is Ranjan related to Sudha?

- (a) Nephew (b) Brother (c) Cousin (d) Son

16. Introducing a man to her husband, a woman said his brother's father is the only son of my grandfather. How is the woman related to this man?

- (a) Mother (b) Aunt (c) Sister (d) Daughter

17. Showing a lady in the park, Vineet said, 'She is the daughter of my grandfather's only son'. How is Vineet related to the lady?

- (a) Brother (b) Cousin (c) Father (d) Uncle

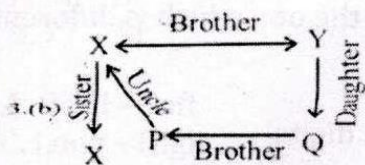
18. A is the son of B and brother of C but B is not the father of C then what is B to C?

- (a) Father (b) Mother (c) Sister (d) Daughter

ANSWERS

1.(b)

2.(b)



Therefore, X is uncle of P.

4.(d) Q is the son of P.

Therefore, Q is a male.

S is the son of Q.

Therefore, S is the grandson of P.

T is wife of Q and mother of S.

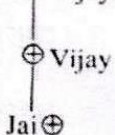
P is the father of R and R is the daughter of P.

V is the husband of R.

U is the wife of P.

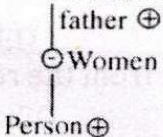
V is son-in-law of U.

5.(c) \oplus Vijay's father



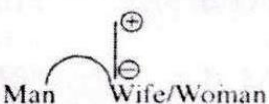
\therefore It is clear that Jai - Vijay are father - son.

6.(c) Women's father \oplus



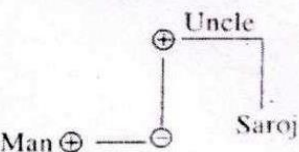
\therefore Women is the mother of person.

7.(d)



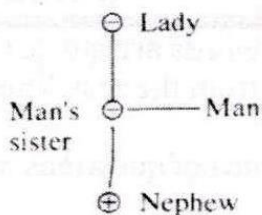
\therefore Man is husband of woman.

8.(b)



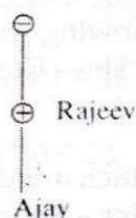
\therefore Man is cousin of Saroj.

9.(d)



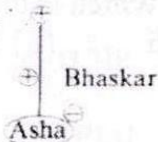
Lady is the mother of man's sister.

10.(d)



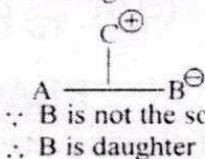
\therefore Rajeev is father of Ajay.

11.(a)



Asha is daughter of bhaskar.

12.(b)

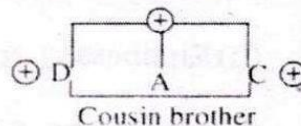


\therefore B is not the son

\therefore B is daughter

\therefore B & C are Daughter and Father respectively.

13.(a)



14.(c)

15.(d) Sudha is Ranjan's mother, therefore he is son of Sudha.

16.(c) Only son of her Grandfather is her father. Man's brother's father means man's father. Thus, she is sister of the man.

17.(a) The lady is Vineet's sister. Thus, Vineet is her brother.

18.(b) B is the mother of C.

CLASSIFICATION

In this type of test, four words are given. Out of which three are almost same in any way but the balance one is different from the rest. The candidate has to find out the one which is different from the rest.

Under this type three kinds of questions may be asked.

1. Based on words
2. Based on letters
3. Based on digits

Example: Which one of the following words is different from the rest?

- (a) Cow (b) Horse (c) She - Goat (d) Lion

Solution - D

Example: Find out the pairs which are different from the others.

- (a) Mason - wall (b) Cobbler - Shoes (c) Farmer - Crop (d) Tailor - Dyeing

Solution - D

Example: Find out the number which is different from the rest.

- (a) 11 (b) 13 (c) 15 (d) 17

Solution - C

Example: Which Group of letters is different from the rest?

- (a) LO (b) MN (c) GT (d) FV

Solution - D

PRACTICE EXERCISE

Direction: In each of the following questions find the word which is different from the rest.

1. (a) Madam (b) Eye (c) Hand (d) Malayalam
2. (a) Charity (b) Kindness (c) Revenge (d) Love
3. (a) Radish (b) Carrot (c) Potato (d) Cabbage
4. (a) Spinach (b) Turmeric (c) Cumin (d) Coriander
5. (a) Cricket (b) Badminton (c) Tennis (d) Hockey
6. (a) Trumpet (b) Roar (c) Shout (d) Grunt

Direction: Find out the pair which is different from the others in each of the following questions.

7. A. Reward : Punishment
C. Sharp: Blunt
B. Object : Permit
D. Cold: Cool
8. A. 52: 68
B. 63: 77
C. 64: 80
D. 50: 66

- | | | | |
|---|---|------------|-----------------|
| 9. A. Air and Oxygen
C. Cloth and Thread | B. Flower and petal
D. Shirt and Tie | | |
| 10. A. 36 - 5
B. 77 - 11 | B. 28 - 4
C. 91 - 13 | | |
| 11. A. Hard - Soft
C. Long - High | B. Pointed - Blunt
D. Sweet - Sour | | |
| 12. A. 11-20 | B. 26 - 34 | C. 46 - 37 | D. 67 - 76 |
| 13. A. 25 - 55 | B. 26 - 34 | C. 33 - 48 | D. 19 - 61 |
| 14. A. 3 - 4 | B. 4- 7 | C. 5 - 12 | D. 20 - 21 |
| 15. A. BFIK | B. DHKM | C. MQTV | D. PRVX |
| 16. A. UAVBWC | B. CHIDJE | C. XLYMZN | D. PEQFRG |
| 17. A. DCFG | B. FEHI | C. JILM | D. HGIK |
| 18. A. UQMJ | B. ZVRN | C. SOKG | D. TPLH |
| 19. A. AZ | B. DU | C. EV | D. GT |
| 20. A. BED | B. LOT | C. OUT | D. RAT |
| 21. A. ABEG | B. PQTV | C. XYBD | D. JKMO E. MNQS |
| 22. A. 9611 | B. 1754 | C. 7324 | D. 2690 E. 5310 |
| 23. A. 215 | B. 126 | C. 65 | D. 28 E. 9 |

ANSWERS

- | | | | |
|--------|---------|---------|---------|
| 1. (D) | 7. (B) | 13. (D) | 19. (B) |
| 2. (A) | 8. (B) | 14. (C) | 20. (D) |
| 3. (D) | 9. (D) | 15. (D) | 21. (D) |
| 4. (C) | 10. (A) | 16. (B) | 22. (C) |
| 5. (D) | 11. (C) | 17. (D) | 23. (A) |
| 6. (A) | 12. (B) | 18. (A) | |

SERIES COMPLETION

In this type of questions, a series of single, pairs or groups of letters or combinations of letters and numerals is given. The terms of the series form a certain pattern as regards the position of the letters in the English alphabet. The candidate is required to decipher this pattern and accordingly find the missing term or the wrong term in the given series.

PRACTICE EXERCISE

Direction: (Q. Nos. 1-20) In each of the following question, various terms of an alphabet series are given with one more term missing as shown by (?). Choose the missing terms out of the given alternatives.

1. T, Q, N, K ?
(a) H (c) G
(b) I (d) F
2. A, D, H, M, ?, ?
(a) P, T (c) S, Z
(b) R, X (d) T, Y
3. H, V, G, T, F, R, E, P, ?, ?
(a) K, L (c) C, D
(b) D, N (d) L, D
4. X, Q, K, F, ?
(a) E (c) C
(b) B (d) D
5. A, D, E, H, I, L, ?, ?
(a) M, P (c) M, O
(b) M, N (d) M, Q
6. W, T, P, M, I, F, B, ?, ?
(a) Z, V (c) Y, U
(b) X, U (d) Y, V
7. Z, A, U, F, P, ?
(a) K (c) N
(b) M (d) O
8. CE, GI, KM, OQ ?
(a) TW (c) SU
(b) TV (d) RT
9. TU, ?, NO, XY
(a) IJ (c) DF
(b) FG (d) DE
10. LT, MS, NR, OQ, ?
(a) LP (c) PR
(b) QP (d) PP
11. FD, HF, KH, OJ, ?
(a) GH (c) RS
(b) EF (d) TL

12. AC, FH, KM, PR, ?

- (a) UX
- (b) TV

- (c) UW
- (d) VW

13. DF, GJ, KM, NQ, RT, ?

- (a) UX
- (b) UW

- (c) YZ
- (d) XZ

14. BEG, DGI, FIK, HKM, ?

- (a) JNP
- (b) NMO

- (c) JMO
- (d) KLO

15. CPK, FSN, IVQ, LYT

- (a) OBY
- (b) PCX

- (c) PCY
- (d) OBW

16. AEN, MQZ, CGP ?

- (a) OSB
- (b) PUE

- (c) MPX
- (d) OTC

17. DKY, FJW, HIU, JHS, ?

- (a) LFQ
- (b) LGQ

- (c) KGR
- (d) KFR

18. BMK, DLM, FKO, HJQ, ?

- (a) JHS
- (b) JIS

- (c) JGK
- (d) JIR

19. RTM, QRJ, PPG, OND, ?

- (a) NLZ
- (b) MMZ

- (c) MKB
- (d) NLA

20. AZY, EXW, IVU, ?

- (a) MTS
- (b) MQR

- (c) NRQ
- (d) LST

ANSWERS

1(a) 2(c) 3(b) 4(b) 5(a) 6(c) 7(a) 8(c) 9(d) 10(d)
11(d) 12(c) 13(a) 14(c) 15(d) 16(a) 17(b) 18(b) 19(d) 20(a)

SYMBOLS AND NOTATIONS

First we should know some mathematics operations, like additions (+), Subtraction (-), Multiplication (x) division (\div), signs like greater than (>), less than (<) and equal to (=) etc. This test is formulated to judge candidate's skills in mathematical operations using artificial symbols. You are requested to substitute the real signs and solve the questions accordingly.

PRACTICE EXERCISE

TYPE I

Q1. If + means \div , - means x, x means +, \div means -, then give the value for

$$45 + 9 - 3 \times 15 \div 2$$

- (a) 40 (b) 36 (c) 56 (d) 28

Q2. If 'x' means '+', '+' means ' \div ', '-' means 'x', ' \div ' means '-' then

$$6 \times 4 - 5 + 2 \div 1 = ?$$

- (a) 10 (b) 11 (c) 12 (d) 15

Q3. If P denotes Multiplied by, T denotes 'subtracted from', M denotes 'added to' and B denotes divided by then

$$12 P 6 M 15 T 16 B 4$$

- (a) 70 (b) 83 (c) 75 (d) 110

TYPE II

Q4. If signs '+' and '-' and numbers 4 and 8 interchange between each other, which one of the following four equations would be correct?

- (a) $4 - 8 + 1 = 0$ (b) $8 + 4 + 12 = 8$ (c) $4 + 8 - 12 = 16$ (d) $8 + 4 - 12 = 24$

Q5. Which one of the four interchanges in signs and numbers would make the given equation correct?
 $6 \times 4 + 2 = 16$

- (a) + and x, 2 and 4 (b) + and x, 4 and 6
(c) + and x, 2 and 6 (d) None of these

Q6. If $5 \times 4 = 15$, $7 \times 8 = 49$ and $6 \times 5 = 24$

Then 8×4 is equal to

- (a) 24 (b) 26 (c) 28 (d) 30

Q7. If p means -, q means +, r means \div , and s means x, Then $18p6q4s6r2 = ?$

- (a) 24 (b) 12 (c) 26 (d) 128

Q8. $9 - 8 - 7 = 876$, $6 - 4 - 2 = 531$, Then $8 - 5 - 3 = ?$

- (a) 647 (b) 741 (c) 742 (d) 572

Q9. $5 * 3 = 125$, $4 * 3 = 64$, $8 * 2 = ?$

- (a) 28 (b) 16 (c) 32 (d) 64

Q10. If $3 + 9 = 31$, $15 + 12 = 45$, then $12 + 27$ is

- (a) 94 (b) 14 (c) 49 (d) 53

ANSWERS

- 1(d) 2(d) 3(b) 4(C) 5(B) 6(A) 7(A) 8(C) 9(D) 10(A)

ANALOGY

"Analogy means 'Similarity'. In this type of questions, two objects related in some way are given and another similar relationship has to be identified

Example

Deep: Shallow: Freedom: _____

- (a) Democracy (b) Convict (c) Prison (d) Discipline

Solution- Deep is the antonym of "Shallow" while "Freedom" is the antonym of "Discipline"

Example

Best; Worst

Save; Kill

Create; Destroy

Genuine: Authentic: Mirage: _

- (a) Image (b) Transpiration (c) Reflection (d) Illusion

Solution- Illusion is the synonym of mirage

PRACTICE EXERCISE

TYPE I - WORD ANALOGY

1. Planet : Orbit : Projectile :

- (a) Trajectory (b) Milky way (c) Planet (d) Path (e) One of above

2. Cobbler: Leather: Carpenter :

- (a) Furniture (b) Wood (c) Hammer (d) Chair (e) None of these

3. Ocean : Water : Glacier:

- (a) Refrigerator (b) Ice (c) Mountain (d) Cave (e) None of these

4. Soap is related to wash in the same way as Broom is related to

- (a) Clean (b) Dust (c) Sweep (d) Floor (e) None of these

5. Drummer is related to orchestra in the same way as minister is related to

- (a) Voter (b) Constituency (c) Cabinet (d) Department (e) None of these

6. Quail : Partridges : yak : _____

- (a) Cows (b) Beer (c) Deer (d) Oxen (e) Antelope (f) None of these

7. Boat : Oar : Bicycle: _____

- (a) Road (b) Wheel (c) Seat (d) Paddle (e) Chain

8. Drop : Ocean : Star

- (a) Earth (b) Sky (c) Twinkle (d) Sun (e) None of these

9. MEAT : VEGETABLE : LIQUOR : _____

- (a) Insane (b) Tee to taller (c) Introvert (d) Foolish (e) Irrational

10. SHOE : SHINING : PANT : _____
 (a) Stitching (b) Wearing (c) Keeping (d) Buying Washing

TYPE II - LETTER ANALOGY

11. AZB: ZAY: : RBC : ____
 (a) IYX (b)STU (c)WPQ (d)ABD
12. ERID: DIRE: RIPE: ____
 (a) EPIR (b)PERI (c)EPRI (d)PEIR (e)IPRE
13. ASK: YQI: NUT: ____
 (a) LRS (b) RSL (c) SLR (d) LSR
 (b) None of these

- (14) LS: KT: VE: ____
 (a) UF (b)FU (c) UG (d) TF (e) None of these

TYPE III - NUMBER ANALOGY

15. 125: 5:: ____ : 8
 (a) 343 (b) 64 (c) 27 (d) 216 (e) None of these
16. 15: 36:: 17: ____
 (a) 64 (b) 36 (c) 49 (d) 36
17. 63: 80: 15: ____
 (a) 24 (b) 12 (c) 42 (d)20 (e)None
18. 13: 17: 23: ____
 (a) 92 (b)30 (c)29 (d) 31 (e) None of these

ANSWERS

1(a)	2(b)	3(b)	4(c)	5(c)	6(d)	7(d)	8(b)	9(b)
10(c)	11(a)	12(a)	13(d)	14(a)	15(e)	16(a)	17(a)	18(d)

SYNONYMS

A synonym is a word or phrase that means exactly or nearly the same as another lexeme in the same language. Words that are synonyms are said to be synonymous, and the state of being a synonym is called synonymy. For example, the words begin, start, commence, and initiate are all synonyms of one another.

PRACTICE EXERCISE

Direction: Find out word, which is nearest to the given words:

1. Glad
(a) Sad (b) Happy (c) Grief (d) Sweet
2. Deep
(a)Hollow (b) Sink (c) Well (d) Water
3. Mistake
(a) Error (b) Steal (c) Poor (d) Discipline
4. Leave
(a)Tree (b) Wood (c) High (d) Old
5. Handsome
(a) Ugly (b) Care (c) Attractive (d) Beautiful
6. Fast
(a)Slow (b) Swift (c) Dull (d) Peace
7. Erase
(a)Trace (b) Soft (c) Rule (d) Press
8. Disappoints
(a)Hope (b) Hopeless (c) Timid (d)Regret
9. Difficult
(a)Easy (b) Hard (c) Fast (d) Slow
10. Serene
(a)Calm (b) Storm (c) Strive (d) Noise
11. Catch
(a) Loose (b) Help (c) Seize (d) Fish
12. Little
(a)Giant (b) Small (c) Big (d) Narrow
13. Wise

- | | | | | |
|----------------|-------------|--------------------|---------------|-----------------|
| | (a) Sainik | (b) Sorry | (c) Fool | (d) Intelligent |
| 14. Monarch | (a) King | (b) slate | (c) Dump | (d) Store |
| 15. Mortal | (a) Earth | (b) Ocean | (c) Air | (d) Man |
| 16. Sad | (a) Small | (b) Big | (c) Green | (d) Sorrow |
| 17. Judge | (a) Mistake | (b) Lawyer | (c) Judgement | (d) Money |
| 18. Wicked | (a) Son | (b) Friend | (c) Virtuous | (d) Rogue |
| 19. Strawberry | (a) Plum | (b) Mangoes | (c) Oak | (d) Oil |
| 20. Lion | (a) Weak | (b) Brave | (c) Timid | (d) Meat |
| 21. Disease | (a) Sick | (b) Blood Pressure | (c) Child | (d) Gum |
| 22. Book | (a) Library | (b) Mother | (c) Guide | (d) Money |
| 23. Cottage | (a) Palace | (b) School | (c) Hut | (d) Nest |
| 24. Manure | (a) Yield | (b) Green | (c) Increase | (d) Fall |
| 25. Butter | (a) Sweet | (b) Bread | (c) Curd | (d) Tonic |

ANSWERS

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

SIMILAR WORDS

- | | | |
|-----|------------------|------------|
| 1. | Accuse..... | (Blame) |
| 2. | Border..... | (Edge) |
| 3. | Amount..... | (Total) |
| 4. | Anxious..... | (Worried) |
| 5. | Affairs..... | (Event) |
| 6. | Aim..... | (Purpose) |
| 7. | Boundary..... | (Limit) |
| 8. | Bribe..... | (Tempt) |
| 9. | Ceremonial..... | (Formal) |
| 10. | Check..... | (Stop) |
| 11. | Comfort..... | (Ease) |
| 12. | Confess..... | (Admit) |
| 13. | Declare..... | (Announce) |
| 14. | Decay..... | (Rot) |
| 15. | Consider..... | (Think) |
| 16. | Courte..... | (Progress) |
| 17. | Desire..... | (Want) |
| 18. | Demand..... | (Ask) |
| 19. | Develop..... | (Grow) |
| 20. | Destructive..... | (Harmful) |
| 21. | Earnest..... | (Serious) |
| 22. | Earn..... | (Gain) |
| 23. | Exit..... | (Live) |
| 24. | Fair..... | (Just) |
| 25. | Favour..... | (Support) |
| 26. | Fortune..... | (Luck) |
| 27. | Gain..... | (Win) |
| 28. | Graceful..... | (Charming) |
| 29. | Harm..... | (Hurt) |

- | | | |
|------------|----------------------|------------------|
| 30. | Honour..... | (Respect) |
| 31. | Imitate..... | (Copy) |
| 32. | Increase..... | (Grow) |
| 33. | Nuisance..... | (Trouble) |
| 34. | Observe..... | (Notice) |
| 35. | Organise..... | (Arrange) |

RE -ARRANGING WORDS TO FORM CORRECT SENTENCES

Direction: Re - arrange the following words to form sensible sentences and write the last word of each:

1. Dogs seldom bite barking.
2. Has a leaf in life he turned over new.
3. Mother is the invention of necessity.
4. Heavy rains broke down on systems of account telegraph.
5. The nipped bud must be in the evil.
6. Colours flying student in the examination come out hard working.
7. Open the door broke the thief.
8. His silver mouth was born with in spoon he.
9. The three day old students off the strike called.
10. The midnight examination days burn a lot of student during oil.
11. If you run into carelessly, debt will spend you.
12. Their parents take the children after usually.
13. Do not advise your deaf father's turn to a ear.
14. A new hit idea upon he.
15. You must cost your word at any keep.
16. Always air is in the castles building he.
17. There is a way there will is a where.
18. Spilt milk is cry over useless it to.
19. National are the children of the pillars.
20. The rod spare the children of the spoil.
21. The mare makes the go money.
22. A keeps company is known by the man he.

ANSWERS

- | | | | | | | |
|----------|-----------|--------------|----------|-------------|----------------|------------------|
| 1(bite) | 2(life) | 3(invention) | 4(rains) | 5(bud) | 6(examination) | 7(door) |
| 8(mouth) | 9(strike) | 10(days) | 11(debt) | 12(parents) | 13(adv | 14(idea) |
| 15(cost) | 16(air) | 17(way) | 18(milk) | 19(nation) | 20(child) | 21(go) 22(keeps) |

TEST OF VOCABULARY OR WORD POWER

1. Name the serial number in the word on the right which is more nearly antonym of the italicised word on the left.

- | | | | | |
|-------------|------------|--------------|--------------|--------------|
| (a) Surpass | (i) BEATEN | (ii) SUCCEED | (iii) EXCEL | (iv) SURPLUS |
| (b) Reward | (i) BEAT | (ii) AWARD | (iii) PUNISH | (iv) REPAY |
| (c) Admit | (i) PERMIT | (ii) DENY | (iii) ALLOW | (iv) CONFESS |

2. Name the serial number of the word in the following groups which is most nearly synonym of the italicised word.

- | | | | | |
|-------------|------------|--------------|----------------|--------------|
| (a) Empty | (i) VESSEL | (ii) FULL | (iii) VACANT | (iv) CROWDEI |
| (a) Gallant | (i) AWARD | (ii) COWARD | (iii) SOLDIERS | (iv) BRAVE |
| (c) Allay | (i) KINDLE | (ii) AGITATE | (iii) PACIFY | (iv) EXCITE |

3. Some words in the following groups are similar and dissimilar to the word ACQUIT. Write the serial number of similar in group A, dissimilar in group B, and those having no relationship

- | | | | | |
|--------------|-------------|-------------|-------------|------------|
| (a) ABSOLVE | (b) CONVICT | (c) CONDEMN | (d) FREE | (e) PRAISE |
| (f) LIBERATE | (g) CLEAR | (h) DESPISE | (i) SATISFY | |

4. LACERATE :

Arrange in group A the serial number of words similar in meaning to the above word and in group B

- | | | | | |
|----------|-----------|------------|----------|-----------|
| (i) REND | (ii) MEND | (iii) HEAL | (iv) RIP | (v) SEVER |
| (vi) SEW | | | | |

5. Arrange the serial number of words in the following group keeping words similar meaning in group A and those with opposite meaning group B.

- | | | | | |
|-----------------|--------------|------------------|--------------|---------------|
| (i) OBSCURE | (ii) PPARENT | (iii) INDUBITABL | (iv) OBVIOUS | (v) AMBIGUOUS |
| (vi) INDISTINCT | | | | |

ANSWERS

1. (a)i (b)iii (c)ii 2. (a)iii (b) iv (c)iii 3. A-a, d, f,g. B.-b,c,h C - g,i
 4. A-i,iv,v B- ii,iii,vi 5. A - i,v,vi,ii,iii,iv B. i & ii; v & iv

MATHEMATICAL QUESTION

1. If three clothes are dried up in 2 hours, in how many hours can 6 clothes, hung up together, be dried up?
(a) 8 hours (b) 3 hours (c) 2 hours (d) 4 hours
2. Think of a number, divide it by 4 and add 9 to it, the result is 15. Find then number.
(a) 20 (b) 21 (c) 24 (d) none of these
3. A man starts on a motor cycle at the speed of 30 miles per hour and after every hour he takes rest for 10 minutes. If he starts at 10:30 A.M. and has to go a distance of 110 miles, at what time will he reach the destination?
(a) 2.40 P.M (b) 3.00 P.M. (c) 3.30 P.M. (d) none of these
4. Find two numbers whose sum is 28 and difference 4.
(a) 16,12 (b) 18,15 (c) 10,12 (d) none of these
5. A number increased by itself and 5 gives 17. What is the number?
(a) 6 (b) 24 (c) 36 (d) 15
6. What number, when multiplied by itself, gives 4 more than 7 score?
(a) 15 (b) 32 (c) 12 (d) None of these
7. Two numbers which differ by 63 are composed of the same two digits in the reverse order. State the numbers.
(a) 45 (b) 23 (c) 15 (d) None of these
8. A book contains 100 pages. On each page there are 20 lines and in each line there are 10 words. How many words does that book contain?
(a) 2000 (b) 3000 (c) 15000 (d) None of these
9. A man is 5 years older than his wife, who is ten times as old as her daughter. If the daughter attains the age of 8 in 3 years' time, what is the age of the man?
(a) 34 (b) 15 (c) 35 (d) None of these
10. If 15 boats starting together, row down a distance of 60 miles in 5 hours, how many miles will be covered by 3 boats in one hour?
(a) 13 (b) 15 (c) 16 (d) None of these

11. A mother tells her daughter, 'I was your present age when you were born'. If the mother is 36 now, how old was the daughter 5 years back?

- (a) 32 (b) 33 (c) 44 (d) None of these

ANSWERS

1(C) 2(C) 3(A) 4(A) 5(A) 6(D) 7(D) 8(A) 9(D)
10(D) 11(D)

MISSING TERMS IN FIGURES

In this chapter, we deal with questions which have a set of numbers or letters or both following a definite pattern represented pictorially. These figures could be any geometrical shapes like circle, triangle, matrices, etc. The pattern can be based on certain Mathematical operations, positional value of the letters in English alphabetical order etc. The candidate is required to find this pattern and accordingly find the missing character in the figure.

Examples given below, will give you a better idea about the types of questions asked in the various competitive exams.

Ex 1.

?	13	49
9	17	69
13	11	59

- (a) 9 (b) 5 (c) 10 (d) 21

Sol. (b) here, the pattern is as follows Number in third column

= 2 x Number in first column

+ 3 x Number in second column

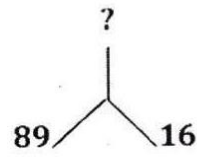
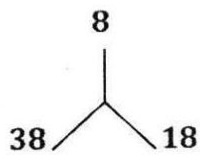
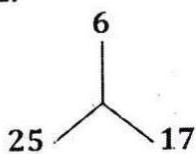
So, $(9 \times 2) + (17 \times 3) = 69$

And $(13 \times 2) + (11 \times 3) = 59$

Hence, $(? \times 2) = 49 - 39 = 10$

$$? = \frac{10}{2} = \boxed{5}$$

Ex 2.



- (a) 13 (b) 15 (c) 17 (19)

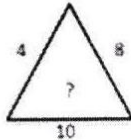
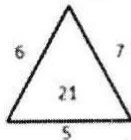
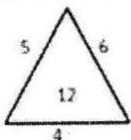
Sol. (b) In figure I, $25 + 17 = 42 \Rightarrow \frac{42}{7} = 6$

In figure II, $38 + 18 = 56 \Rightarrow \frac{56}{7} = 8$

Similarly in figure III, $89 + 16 = 105 = \frac{105}{7} = \boxed{15}$

PRACTICE QUESTIONS

Q 1. What will the integer in place of '?' in the given figure below?



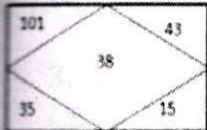
- A. 22 B. 14 C. 320 D. 32

Q2. The diagram below shows a square which has some characters in it. Based on the relationship between the given alphabets find the '?' character.

B	G	N
D	J	R
G	N	?

- A. V B. X C. U D. W

Q3. Two squares and the numbers are given in the figure. Find the number that will use in place of number?



- A. 142 B. 127 C. 198 D. 158

Q4. In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column wise. Find out this trend and choose the missing character accordingly.

72	24	6
96	16	12
108	?	18

- A. 12 B. 16 C. 18 D. 20

Q5. In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column wise. Find out this trend and choose the missing character accordingly.

B	G	N
D	J	R
G	N	?

- A. U B. V C. W D. X

Q6. In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column wise. Find out this trend and choose the missing character accordingly.

1	7	9
2	14	?
3	105	117

- A. 26 B. 20 C. 16 D. 12

Q7. In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column wise. Find out this trend and choose the missing character accordingly.

1	4	9	?
1	2	3	4
2	4	6	?

- A. 16,8 B. 49,7 C. 36,4 D. 25,5

Q8. Direction : Find the missing character from among the given alternatives.

20160	4
?	4
480	8
96	24

- A. 860 B. 1140 C. 2880 D. 3240

Q9.

P	G
F 22	21 N
K 27	15 E
? J	

- A. M B. P C. Q D. S

ANSWERS

- Ans 1 : D) 32 Ans2 : D) W Ans3 : A) 142 Ans4 : A) 12 Ans5 : C) W
 Ans6 : D) 12 Ans 7 : A) 16,8 Ans 8 : C) 2880 Ans 9 : B) P

NON – VERBAL REASONING

NUMBER ANALOGY

1. 6 : 18 : 4 ?
(a) 2 (b) 6 (c) 8 (d) 16
2. 21 : 3 :: 574 : ?
(a) 23 (b) 82 (c) 97 (d) 113
3. 1 : 1 :: 25 : ?
(a) 26 (b) 125 (c) 240 (d) 625
4. 121 : 12 :: 25 : ?
(a) 1 (b) 2 (c) 6 (d) 7
5. 42 : 20 :: 64 : ?
(a) 31 (b) 32 (c) 33 (d) 34
6. 7528 : 5362 :: 4673 : ?
(a) 2367 (b) 2451 (c) 2531 (d) none of these
7. 25 : 37 :: 49 : ?
(a) 41 (b) 56 (c) 60 (d) 65
8. 25 : 125 :: 36 : ?
(a) 180 (b) 206 (c) 216 (d) 318
9. 14 : 9 :: 26 : ?
(a) 12 (b) 13 (c) 15 (d) 31
10. 8 : 28 :: 27 : ?
(a) 8 (b) 28 (c) 64 (d) 65
11. 583 : 293 :: 488 : ?
(a) 291 (b) 378 (c) 487 (d) 581
12. 7 : 56 :: 9 : ?
(a) 63 (b) 81 (c) 90 (d) 99
13. 9 : 8 :: 16 : ?
(a) 27 (b) 18 (c) 17 (d) 14

14. 8:81::64:?
(a) 125 (b) 137 (c) 525 (d) 625

15. 17:52::1:?
(a) 3 (b) 4 (c) 5 (d) 51



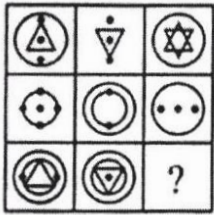
ANSWERS

ANSWERS

- | | | | | |
|------|-------------|------|-------|-------|
| 1. C | 4. B | 7. D | 10. D | 13. D |
| 2. B | 5. A | 8. C | 11. B | 14. D |
| 3. D | 6. B | 9. C | 12. C | 15. B |

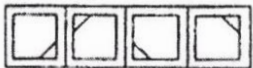
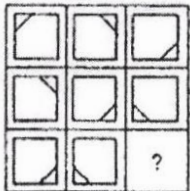
FIGURE MATRIX

1.



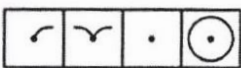
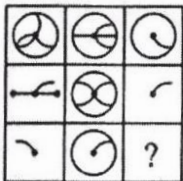
(a) (b) (c) (d)

2.



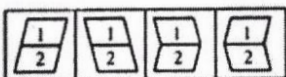
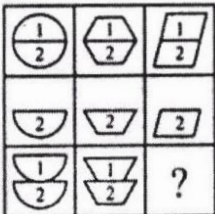
(a) (b) (c) (d)

3.



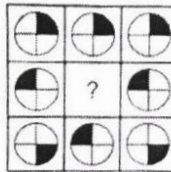
(a) (b) (c) (d)

4.



(a) (b) (c) (d)

5.

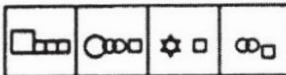
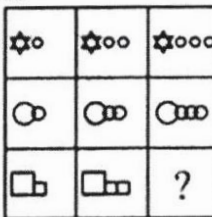


Answer Figures



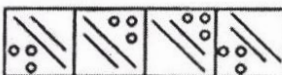
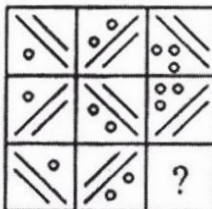
(a) (b) (c) (d)

6.



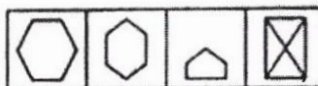
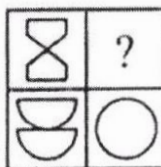
(a) (b) (c) (d)

7.



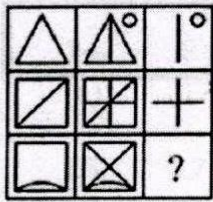
(a) (b) (c) (d)

8.



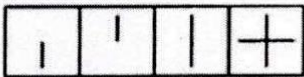
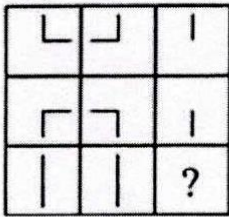
(a) (b) (c) (d)

9.



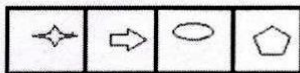
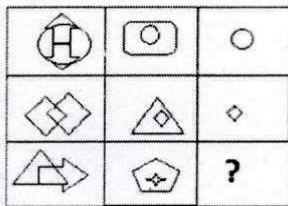
(a) (b) (c) (d)

10.

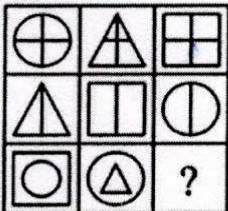


(1) (2) (3) (4)

11.

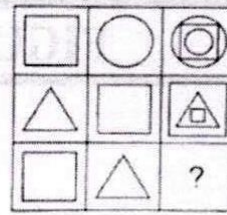


12.

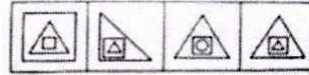


(a) (b) (c) (d)

13.

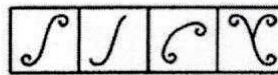
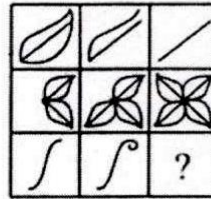


Answer Figures



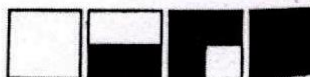
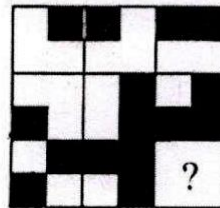
(a) (b) (c) (d)

14.



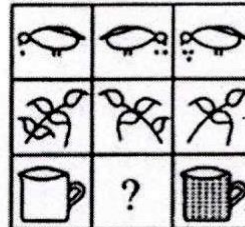
(a) (b) (c) (d)

15.



(a) (b) (c) (d)

16.



(a) (b) (c) (d)

17.

•••	••	••
•••	••	••
•••	••	?

•	••	•••	••••
---	----	-----	------

(A) (B) (C) (D)

18.

⊗	⊗	⊗
⊕	⊕	+
△	△	?

—	⊗	⊗	○
---	---	---	---

(a) (b) (c) (d)

19.

△	△	□
△	□	△
□	△	?

△	△	□	△
---	---	---	---

(A) (B) (C) (D)

20.

○	○○	○○○
△	?	△△

△	□	△	△
---	---	---	---

(A) (B) (C) (D)

ANSWERS

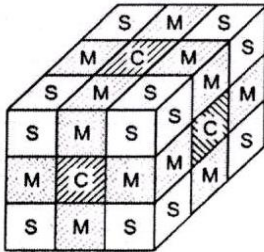
- 1(B) 2(B) 3(C) 4(C) 5(D) 6(A) 7(B) 8(B) 9(D) 10(C) C
 11(A) 12(B) 13(B) 14(A) 15(D) D 16(B) 17(D) 18(D) 19(D) 20(C) D

CUBE AND DICE

A cube or dice is a three – dimensional object bounded by six square faces or surfaces.

CUBE

A cube is a three – dimensional figure, having 8 corners, 6 surfaces and 12 edges.

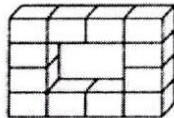


After cutting a cube, following type of smaller cubes are obtained

- Corner cubes = S (exist at each corner)
- Middle cubes = M (exist at the middle of each edge)
- Central cubes = C (exist at the middle of each face)
- Nuclear cube/Inner central cube = N (hidden and exist at the centre of the larger cube)

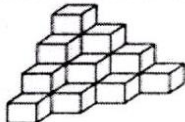
PRACTICE EXERCISE

1. How many cubes are there in this diagram?



- (a) 16 (b) 12 (c) 10 (d) 8

2. How many cubes are there in the group?



- (a) 10 (b) 16 (c) 18 (d) 20

3. Two positions of a cube are shown below. What will come opposite to face containing '9'?



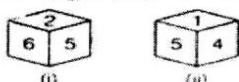
- (a) 7 (b) 4 (c) 6 (d) 4 or 6

4. Two positions of a dice are shown below when number 1 is on the top. What number will be there at the bottom?



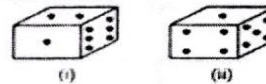
- (a) 2 (b) 3
(c) 5 (d) Data inadequate

5. What number is at the opposite of 3 in the figure shown below? The given two positions are of the same dice whose each surface bears a number among 1, 2, 3, 4, 5 and 6.



- (a) 2 (b) 4 (c) 5 (d) 6

6. All the surfaces of the dice contain different numbers in the form of dots. Consider both the figures of dice and tell how many dots are there on the face opposite to the face that contains four dots?



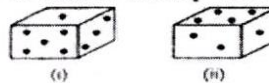
- (a) 2 (b) 3 (c) 5 (d) 6

7. When number 1 is at the top, which number will come at the bottom?



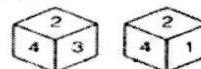
- (a) 1 (b) 2 (c) 3 (d) 6

8. Two positions of a dice are shown below. When there are two dots at the bottom, the number of dots at the top will be



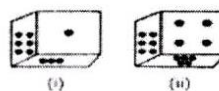
- (a) 2 (b) 3
(c) 5 (d) 6

9. Which number will appear on the face opposite to 1?



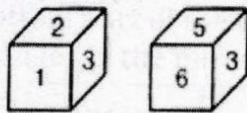
- (a) 6 (b) 5
(c) 4 (d) 3

10. Two positions of a cube are shown below. When the face at the top has 3 dots, then how many dots will be there at bottom face?



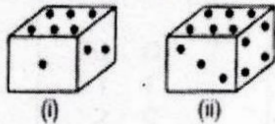
- (a) 5 (b) 1 (c) 4 (d) 2

11. Which digit will appear on the face opposite to the face with number 4?



- (a) 1 (b) 2 (c) 3 (d) 4

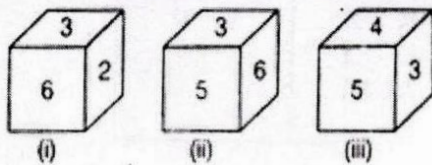
12. Two positions of a block are shown below



When six is at the bottom, what number come at the top?

- (a) 1 (b) 2 (c) 4 (d) 5

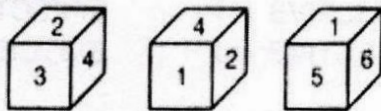
13. Three positions of a dice are given below



Identify the number on the face opposite to 6.

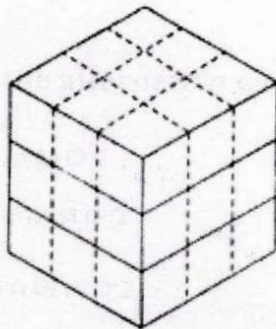
- (a) 1 (b) 4 (c) 5 (d) 7

14. Three views of a cube are given below. Which number is printed on the opposite face to number 4?



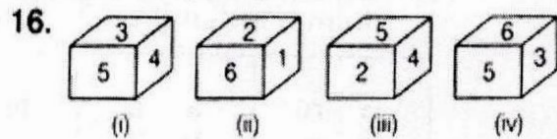
- (a) 5 or 6 (b) 3 (c) 6 (d) 2

15. The following figure represents a wooden block of cube shape with 3 cm as its edge and all the face of the cube are painted black. If the cube is cut along the dotted lines and 27 new cubes are formed with a volume of 1 cm^3 each. What will be the number of non-painted blocks?



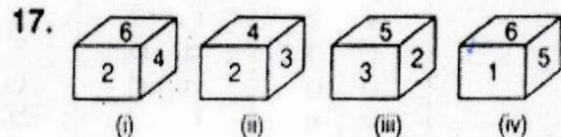
- (a) 1 (b) 3 (c) 6 (d) 9

Directions (Q. Nos. 16-20) In each of the following question, four positions of the same dice have been shown. You have to see these figures and select the number opposite to the number as asked in each of the question.



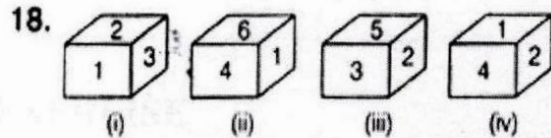
Which number is at the opposite face of number 5?

- (a) 6 (b) 5 (c) 1 (d) 3



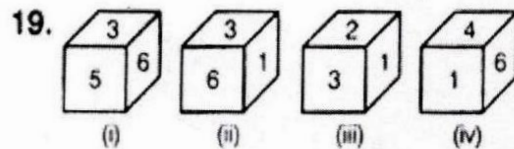
Which number is at the opposite face of number 2?

- (a) 4 (b) 1 (c) 5 (d) 3



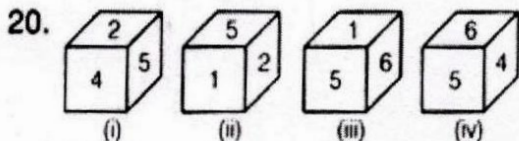
Which number is at the opposite face of number 5?

- (a) 4 (b) 6 (c) 1 (d) 3



Which number is on the opposite surface of number 3?

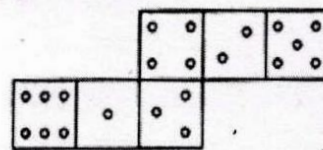
- (a) 4 (b) 6 (c) 5 (d) 1



Which number is opposite to number 1?

- (a) 4 (b) 6 (c) 2 (d) 3

21. How many dots lie opposite to the face having three dots, when the given figure is folded to form a cube?



- (a) 2 (b) 4 (c) 5 (d) 6

ANSWERS

1. (b) 2.(d) 3.(b) 4.(c) 5.(c) 6.(d) 7.(d) 8.(b) 9.(d) 10.(a)
 11.(c) 12.(d) 13.(b) 14.(c) 15.(a) 16.(c) 17.(b) 18.(c) 19.(a) 20.(a)
 21.(d)

MIRROR IMAGE

The reflection of an object as seen in the mirror is called its Mirror image. In Mirror images, the top and bottom part of the image remains the same whereas the left & right side of the image interchanges in the mirror image.

Digits	Alphabet (Big)		Alphabet (Small)						
	A	А	N	И	a	б	n	и	
	B	В	O	О	b	д	o	о	
0	0	C	С	P	Р	c	с	p	р
1	1	D	Д	Q	Q	d	б	q	р
2	2	E	Э	R	Я	e	э	r	я
3	3	F	ƒ	S	2	f	ƒ	s	z
4	4	G	Ɔ	T	T	g	Ɔ	t	т
5	5	H	H	U	U	h	и	u	у
6	6	I	1	V	V	i	1	v	у
8	8	J	L	W	W	j	l	w	у
9	9	K	K	X	X	k	k	x	у
		L	J	Y	Y	l	l	y	у
		M	M	Z	2	m	m	z	z

PRACTICE EXERCISE

1.

EFFECTIVE

(1) EVITCEFFE

(2) EVITCEFFE

(3) EFFECTIVE

(4) EVITCEFFE

a) 1

b) 2

c) 3

d) 4

2.

UTZFY6KH

(1) HK9YFZTU

(2) HNK9YFZTU

(3) HK9YFZTU

(4) HNK9YFZTU

a) 1

b) 2

c) 3

d) 4

3. Choose the alternative which is closely resembles the mirror image of the given combination.

COMMUNMMOC

A. COMMUNMMOC

B. COMMUNMMOC

C. COMMUNMMOC

D. COMMUNMMOC

4. Choose the alternative which is closely resembles the mirror image of the given combination.

S I M U L T A N E O U S

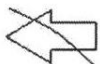
- A. S I M U L T A N E O U S
- B. S I M U L T A N E O U S
- C. S I M U L T A N E O U S
- D. S I M U L T A N E O U S

5. Choose the alternative which is closely resembles the mirror image of the given combination.

I N S T I T U R 3 I

- A. I E R U T I T 2 N I
- B. I E R U T I T 2 N I
- C. I N 2 I T I U 3 I
- D. I E R U T I T 2 N I

6. Choose the alternative which is closely resembles the mirror image of the given combination.



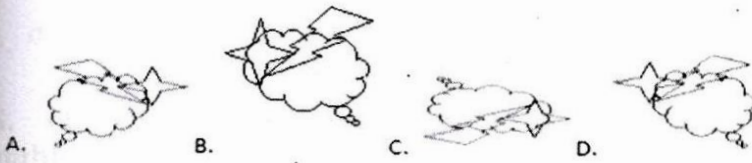
- A.
- B.
- C.
- D.

7. Choose the alternative which is closely resembles the mirror image of the given combination.

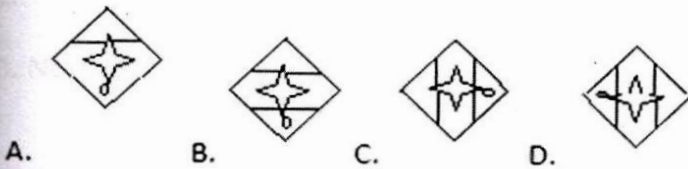


- A.
- B.
- C.
- D.

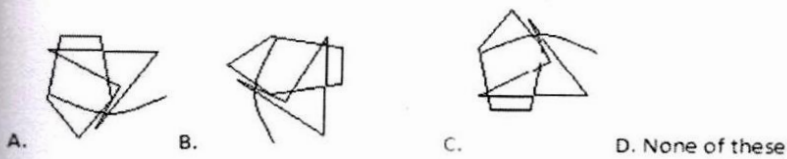
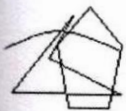
8. Choose the alternative which is closely resembles the mirror image of the given combination.



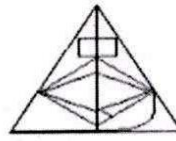
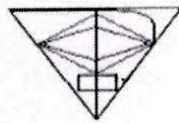
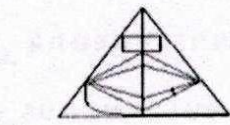
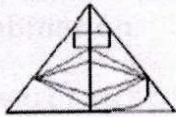
9. Choose the alternative which is closely resembles the mirror image of the given combination.



10. Choose the alternative which is closely resembles the mirror image of the given combination.

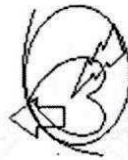
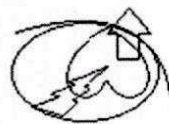
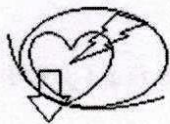
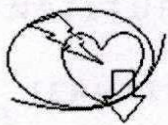


11. Choose the alternative which is closely resembles the mirror image of the given combination.



D. None of these

12. Choose the alternative which is closely resembles the mirror image of the given combination.



13. Choose the alternative which is closely resembles the mirror image of the given combination

LAMBORGHINI.

A. INIHƧROBMAL

B. INIHƧROBMAI

C. ɹAMBOɹCHINI

D. INIHƧROBNI

14. Choose the alternative which is closely resembles the mirror image of the given combination

hAr13YdAV!dS0h

- A. H02bIVAbYε1rAd
- B. H02bIVAbYε1rAd
- C. hAr13YdAV!dS0h
- D. hAr13YdAV!dS0h

15. Choose the alternative which is closely resembles the mirror image of the given combination

miR11TmimTm

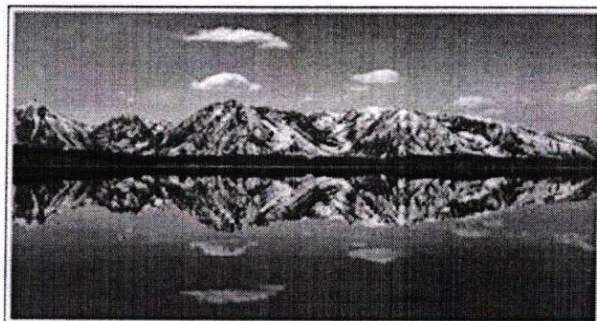
- A. m1R11TmimTm
- B. m1R11TmimTm
- C. mTmimT11Rim
- D. None of these.

ANSWERS

-
- | | | | |
|-----------------|------|-------|-------|
| 1. A | 5. A | 9. B | 13. A |
| 2. D | 6. A | 10. C | 14. D |
| 3. A | 7. C | 11. D | 15. C |
| 4. C | 8. B | 12. A | |

WATER IMAGE

The reflection of an object into the water is its water image. It appears by inverting an object vertically i.e. upside down. The water image of the figure looks like the mirror image of the figure in case the mirror is horizontally at the bottom of the figure.



From the above figure, it is clear that the water image is inverted from a real a real image in which the L H S and the R H S remain at their position i.e. remains on the same side as they are in original figure but the top and bottom of the figure gets interchanged i.e. top becomes bottom and the bottom becomes the top.

In the following section we will extensively be using these two rules.

The letters which have the same water images are – C, D, E, H, I, K, O, X. The small letters which have the same water images after reflection on the surface of a water body are c, l, o, x.

Let us see some solved examples from this section.

Directions: In each of the following questions, a word/group or numbers or both are followed by four alternatives (a), (b), (c), (d) showing possible water image of that word/group of letters or numbers or both. One, out of these four alternatives, is the exact water image of that word/group of letters or numbers or both. Choose from the alternatives the correct water image of that word/group of letters or numbers or both.

Before solving the questions remember there are two main things that you need to keep in mind:
A) The L H S and the R H S remain at their position i.e. remains on the same side as they are in the original figure.

Examples

Q1: From the following choose the alternative that correctly represents the water image of the word N U C L E A R .

- (1) R A E L C U I (2) I N C L E A R
(3) I N C L E A R (4) R A E L C U I

- A) 1 B) 2 C) 3 D) 4 E) None of these

Answer: One of the most common mistakes that people make while answering the questions on water images is to confuse these questions with that of the mirror images. Remember in case of a water image the L H S and the R H S remain at their position i.e. remains on the same side as they

are in the original figure but the top and bottom of the figure get interchanged i.e. top becomes bottom and the bottom becomes the top.

Keeping this in mind, the first image should be the water image of the letter N and the last image should be a water image of the letter R. So option (1) is wrong.

A shortcut to solving these questions is to locate letters that are familiar to you and whose water images are easier for you to imagine. Suppose that letter is L, then you will see that out of the remaining three options the correct answer is either (3) or (4) as in (2) the water image of L is not correct. Now if you focus on the options (3) and (4), you will see that the water image of E is not correct in (3) and hence the correct option is D) 4.

Q2: Choose the option that represents the correct mirror image of b r i d g e

- (1) p r i q d e (2) p l i q d e
 (3) p r i q d e (4) p l i p d e

- A) 1 B) 2 C) 3 D) 4 E) None of these

Answer: Let us recall the two rules that we have. Rule A) states that the L H S and the R H S remain at their position i.e. remains on the same side as they are in the original figure. Well, that doesn't help as all the options seem to be correct. Thus we consider rule B) the top and bottom of the figure gets interchanged i.e. top becomes bottom and the bottom becomes the top. Taking these two into consideration, we see that the correct option here is B) 2.

Miscellaneous Examples (Mixed Letters and Numbers)

We may also have some questions that are a combination of letters and numbers. Let us see the following.

Directions: In each of the following questions, a combination of letters and numbers is followed by four other combinations of letters and numbers showing the possible water images of the letter-number combo. Choose the correct water image of the four options.

Q1: G R 9 8 A P 7 6 E S

- (1) G R 9 8 A P 7 6 E S (2) G R 9 8 A P 7 6 E S
 (3) G R 9 8 A P 7 6 E S (4) G R 9 8 A P 7 6 E S

- A) 1 B) 2 C) 3 D) 4 E) None of these

Answer: Using the two rules that we have, we can say that the answer to the above question is C) 3.

PRACTICE EXERCISE

Q.1. Which is the correct image from the given four images?

U 4 P 1 5 B 7

- (1) U 4 P 1 5 B 7 (2) U 4 P 1 5 B 7
 (3) U 4 P 1 5 B 7 (4) U 4 P 1 5 B 7

- (A) 1 (B) 2 (C) 3 (D) 4

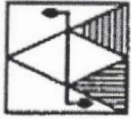
Q.2. Which is the correct image from the given four images.

NhRqSy

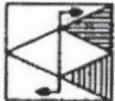
- (1) NHᄁᄁᄁλ (2) Hᄁᄁᄁᄁλ
 (3) Hᄁᄁᄁᄁλ (4) Hᄁᄁᄁᄁλ

- (A) 1 (B) 2 (C) 3 (D) 4

Q.3. Which is the correct image from the given four images.



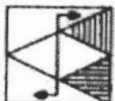
(x)



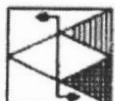
1



2



3



4

- (A) 1 (B) 2 (C) 3 (D) 4

Q.4. Which is the correct image from the given four images.

rise

- (1) L!zᄁ (2) esir
 (3) ᄁiszᄁ (4) ᄁziᄁ

- (A) 1 (B) 2 (C) 3 (D) 4

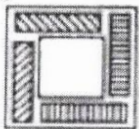
Q.5. Which is the correct image from the given four images.

N4tQj3

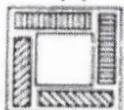
- (1) Hᄁᄁᄁᄁ3 (2) Hᄁᄁᄁᄁᄁ3
 (3) Hᄁᄁᄁᄁ3 (4) Hᄁᄁᄁᄁᄁ3

- (A) 1 (B) 2 (C) 3 (D) 4

Q.6. Which is the correct image from the given four images.



(x)



1



2



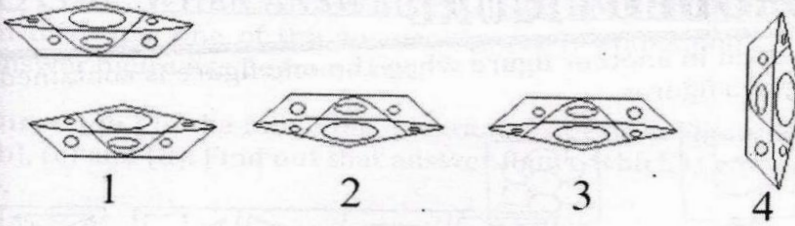
3



4

- (A) 1 (B) 2 (C) 3 (D) 4

Q.7. Find the correct image from the given four images.



- (A) 1 (B) 2 (C) 3 (D) 4

Q.8. Find the correct image from the given four images.

96FSH52

- (1) 96FSH52 (2) 96FSH52
 (3) 96FSH52 (4) 96FSH52

- (A) 1 (B) 2 (C) 3 (D) 4

Q.9. Find the correct image from the given four images.

BK50RP62

- (1) BK50RP62 (2) BK50RP62
 (3) BK50RP62 (4) BK50RP62

- (A) 1 (B) 2 (C) 3 (D) 4

PRACTICE EXERCISE

Direction (Q. 1-30): In each question, a figure is given followed by four alternative figures. Find the figure which is most similar to the given figure.

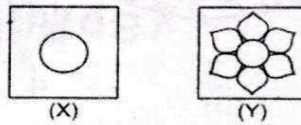


ANSWERS

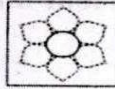
1. C 2. D 3. A 4. A 5. A 6. D 7. C 8. C 9. B

EMBEDDED FIGURE

A figure is said to be hidden or embedded in another figure when the one figure is contained in the other. Let us consider following two figures.



By careful observation of fig (Y), we find that fig (X) is embedded in it, as shown in the figure given below by solid line.

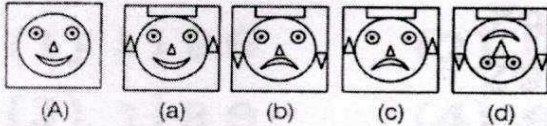


TYPE I : WHEN QUESTION FIGURE EMBEDDED IN ANSWER FIGURE

In this type, the question figure is embedded in one of the answer figure. The candidate is required to find out the answer figure in which the given question figure is embedded.

Directions: In the following questions, figure (A) is embedded in any one of the four alternative figures (a), (b), (c) and (d). Find the alternative which contains figure (A) as its part.

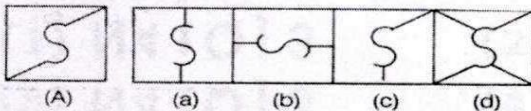
1.



Sol. (a) careful observation, we find that the figure (A) is embedded in figure (a) as shown below.



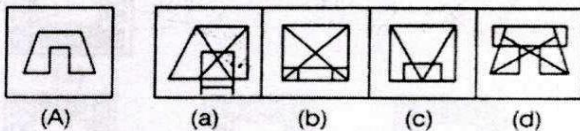
2.



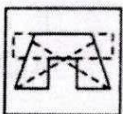
Sol. (d) By careful observation, we find that the figure (A) is embedded in figure (d) as shown below.



3.



Sol. (d) by careful observation, we find that the figure (A) is embedded in figure (d) as shown below.

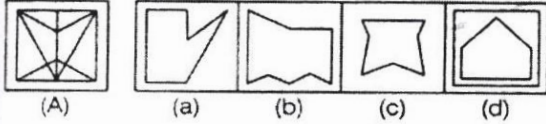


TYPE II : WHEN ANSWER FIGURE EMBEDDED IN QUESTION FIGURE

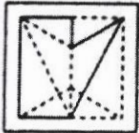
In this type, one of the answer figures is embedded in question figure and that particular answer figure has be found out.

Direction : In the following question, a question Figure is given with four answer figures (a), (b), (c) and (d). Find out that answer figure which is embedded in the question figure.

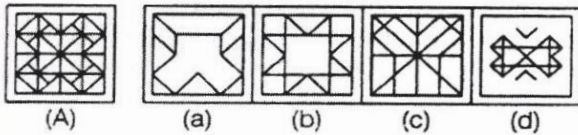
4.



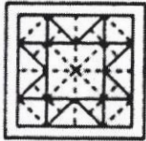
Sol. (a) By carefully observation, we find that the figure (a) is embedded in figure (A) as shown below.



5.



Sol. (d) By carefully observation, we find that the figure (b) is embedded in figure (A) as shown below.

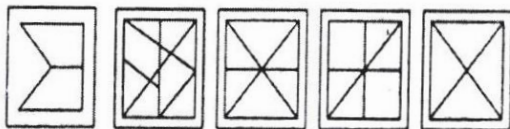


Alert! There may be some questions in which the question figure is not directly embedded in any of the answer figures. In these type of questions, change the orientation of question figure to find the correct answer figure.

PRACTICE EXERCISE

Direction (Q. 1- 30): In each of the following problem, choose the alternative figure in which the problem figure is embedded.

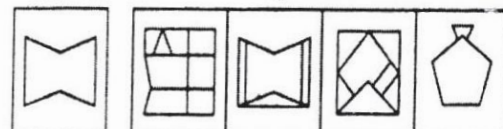
1. Problem Figure



Answer Figures

(a) (b) (c) (d)

2. Problem Figure



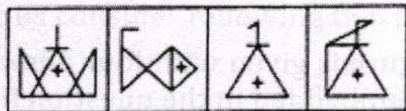
Answer Figures

(a) (b) (c) (d)

3. Problem Figure

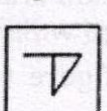


Answer Figures

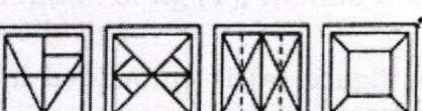


(a) (b) (c) (d)

4. Problem Figure



Answer Figures

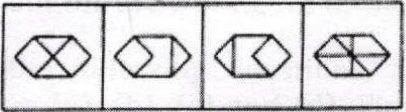


(a) (b) (c) (d)

5. Problem Figure



Answer Figures

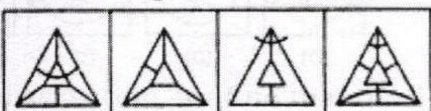


(a) (b) (c) (d)

6. Problem Figure



Answer Figures



(a) (b) (c) (d)

7. Problem Figure

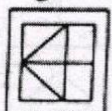


Answer Figures



(a) (b) (c) (d)

8. Problem Figure

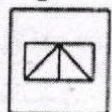


Answer Figures



(a) (b) (c) (d)

9. Problem Figure

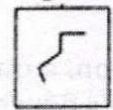


Answer Figures



(a) (b) (c) (d)

10. Problem Figure

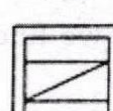


Answer Figures



(a) (b) (c) (d)

11. Problem Figure

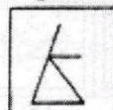


Answer Figures

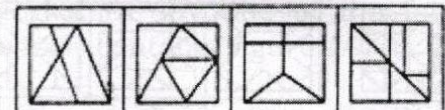


(a) (b) (c) (d)

12. Problem Figure



Answer Figures

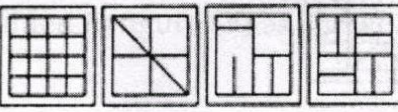


(a) (b) (c) (d)

13. Problem Figure



Answer Figures



(a) (b) (c) (d)

14. Problem Figure

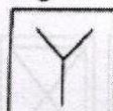


Answer Figures

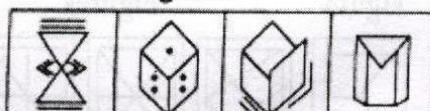


(a) (b) (c) (d)

15. Problem Figure

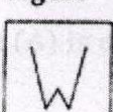


Answer Figures

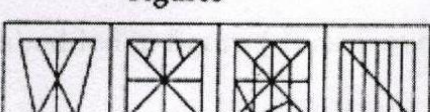


(a) (b) (c) (d)

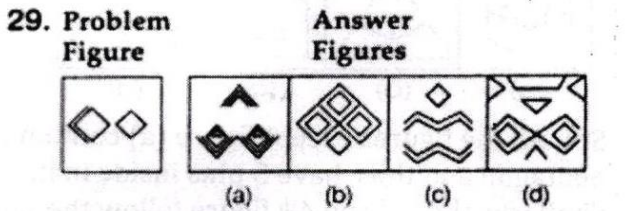
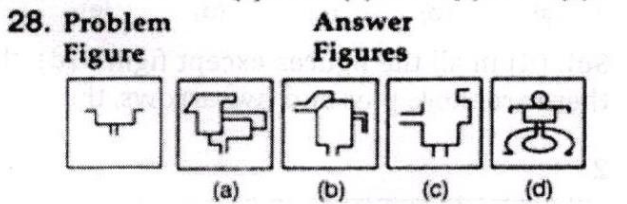
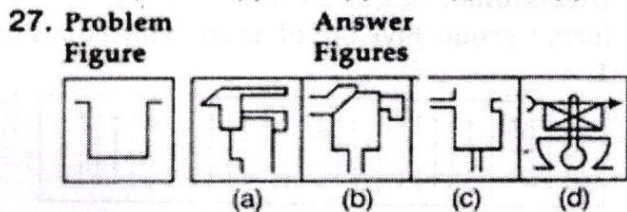
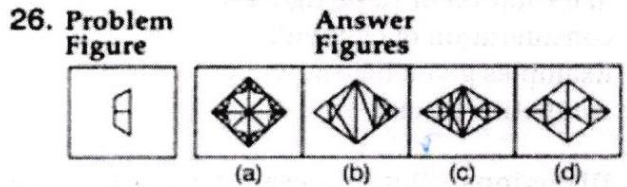
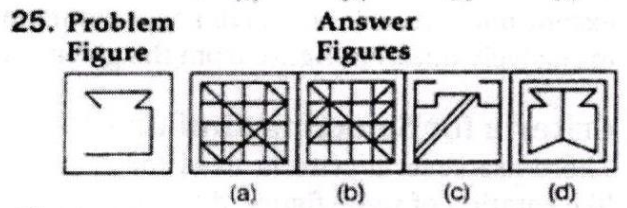
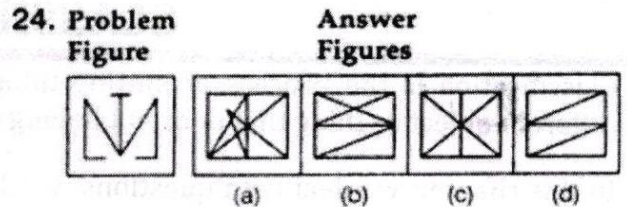
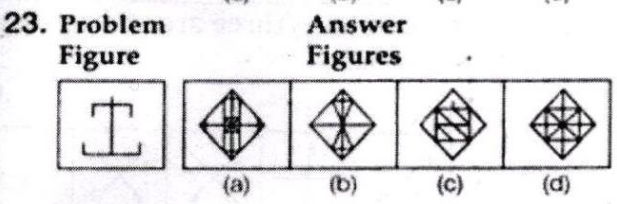
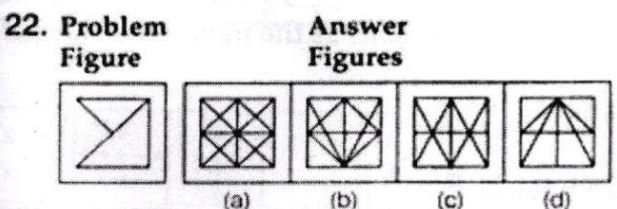
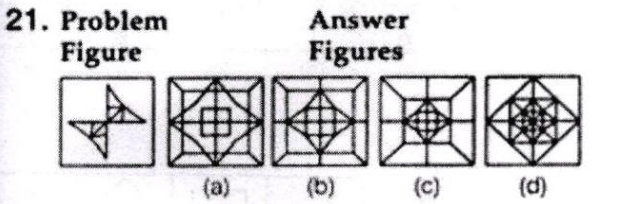
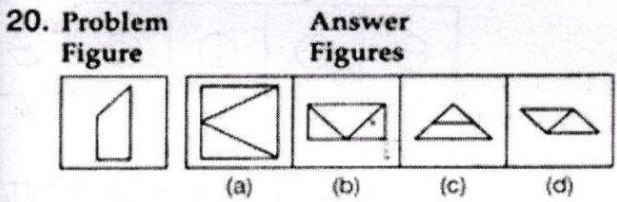
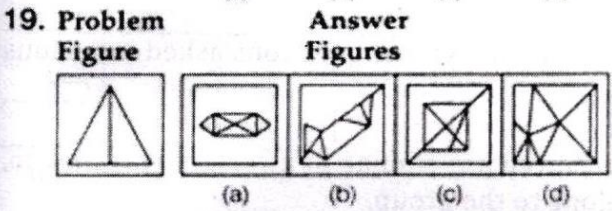
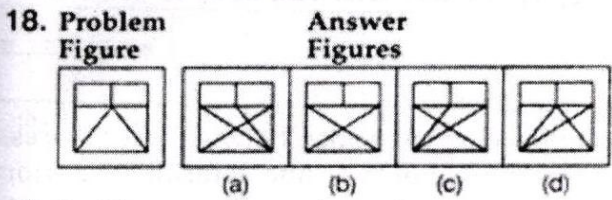
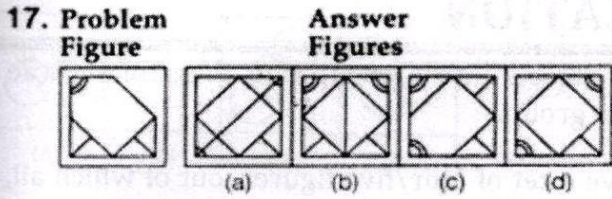
16. Problem Figure



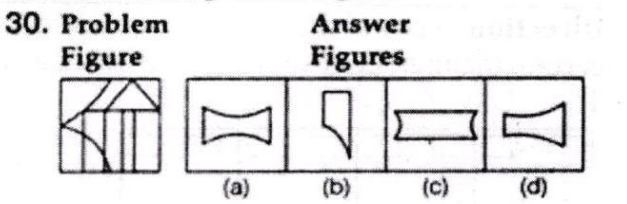
Answer Figures



(a) (b) (c) (d)



Directions (Q. Nos. 30-46) In each of the following question, choose the answer which is embedded in the problem figure.



ANSWERS

1.	(b)	2.	(b)	3.	(d)	4.	(a)	5.	(a)	6.	(c)	7.	(d)	8.	(b)	9.	(c)	10.	(d)
11.	(c)	12.	(b)	13.	(b)	14.	(a)	15.	(b)	16.	(a)	17.	(b)	18.	(d)	19.	(d)	20.	(b)
21.	(d)	22.	(a)	23.	(a)	24.	(b)	25.	(b)	26.	(c)	27.	(d)	28.	(d)	29.	(b)	30.	(b)

CLASSIFICATION

Classification is the process of putting thing or objects into a group and then finding the different object or thing that does not belong to the group.

In this chapter, we deal with questions which have a set of four/five figures, out of which all, except one, are alike or have some common nature/ characteristics. You have to select that exclusively different figure from the given set.

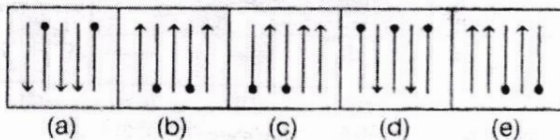
Criteria for Selecting Similar - Dissimilar Figures

There are several criteria used for establishing similar characteristics between the figures, like rotation of same figure, division of figures, number of elements or line, interior - exterior consideration of elements etc.

Examples given below, will give you a better idea about the type of questions asked in various competitive exam.

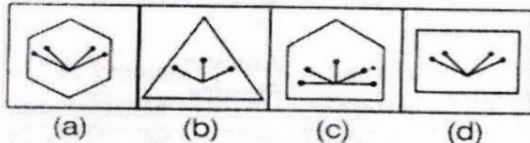
Directions : Out of these five/four given fig., four/three are similar in a certain way and so, form a group. Five out of figure which does not belong to the group.

1.



Sol. (d) in all the figures except figure (d), there are two pins and three arrows. In figure (d), there are there pins and two arrows, thus it is different from the others.

2.



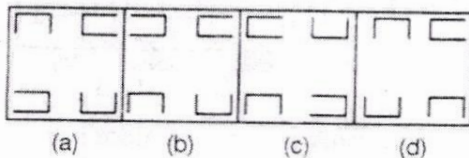
Sol. All the figures except figure (a) contain the same number of pins as the number of sides of pentagon and thus, have 5 pins inside in it.

Similarly, the 2nd and 4th figure follow the same pattern.

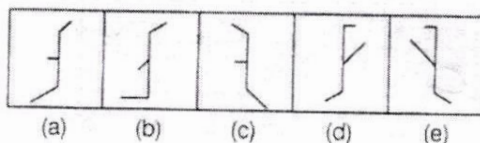
PRACTICE EXERCISE

Direction : each of the following problem, out of five/ four figures, four/three are similar in a certain manner. Choose the figure which is different from the others.

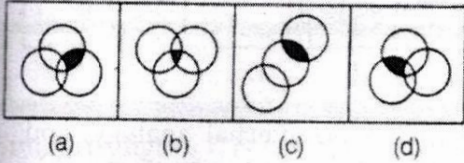
1.



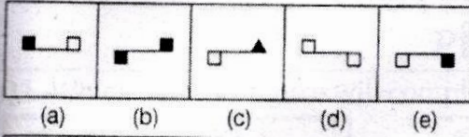
2.



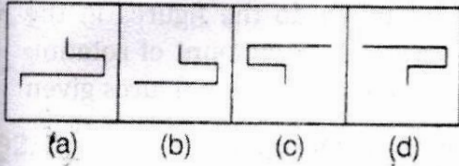
3.



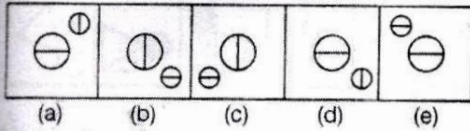
4.



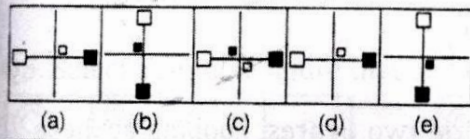
5.



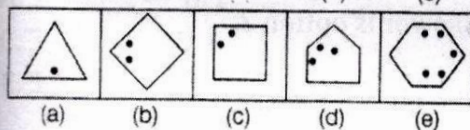
6.



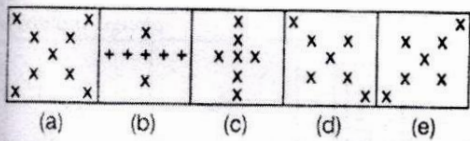
7.



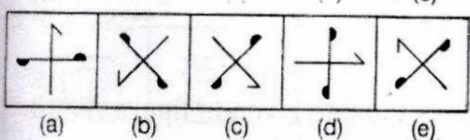
8.



9.



10.



ANSWERS

1. (D) 2. (B) 3. (B) 4. (C) 5. (A) 6. (E) 7. (C) 8. (E) 9. (B) 10. (B)

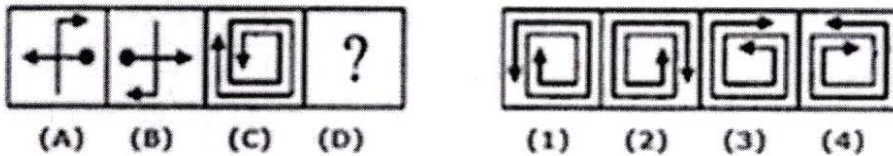
ANALOGY

When you compare two things it becomes an analogy. And in the non-verbal analogy, you compare two similar figures and find the relationship between them. You can easily master this topic because unlike other questions this one does not require any numerical skill. Also, you don't need to remember any formula while solving the question.

Rotation of the Figures

In this type of non-verbal analogy questions, you need to establish a similarity between the first figures and then apply the same rule to the other two figures and find the missing figure. If the question is based on rotation then you need to determine how much do the figures in the question rotates in comparison each other. Once you have established the amount of rotation than you need to check on the other two i.e. one in the question and one out of the figures given in the answer to check which is the correct figure.

Example 1: Which suitable figure will replace the question mark based on the figures given in question?



In this question, we need to find the similarity between the first two figures. Looking at these two figures you can see that figure B is rotated 180 to the right of the figure A. The same logic applies to the other two figures. From the options, you can see that when you rotate figure C by 180° you will get the figure given in option 2. Thus the correct answer is option 2.

From the given figures find the suitable figure that can replace the question mark.

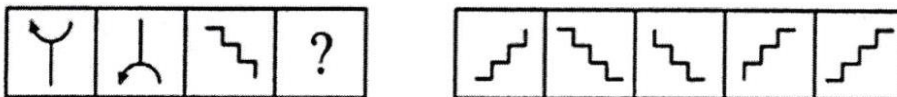
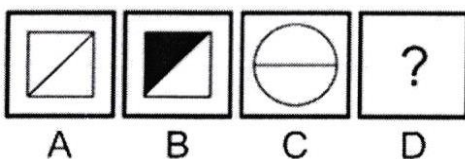
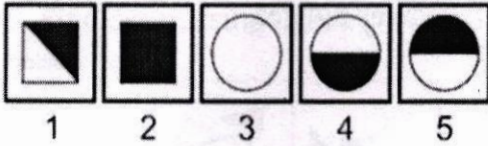


Figure A and B are vertically inverted to each other. In simple terms when you see the figure A in the mirror inverted, you will see a figure similar to the one given in B. Applying the same logic, the figure in option (1) will be vertically inverted to the figure C. Thus a correct answer is an option (1).

Example 2: Establish the similar relationship between C and D as the one given in figure A and B.





Here either side of figure A is not shaded, whereas the left side of figure B is shaded black. Similarly, figure C is not at all shaded and the upper portion of figure D will be shaded. Thus the correct answer here is a figure (5).

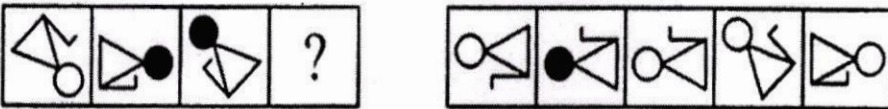
PRACTICE EXERCISE

Q1. Which suitable figure will complete the question mark in the below figure.



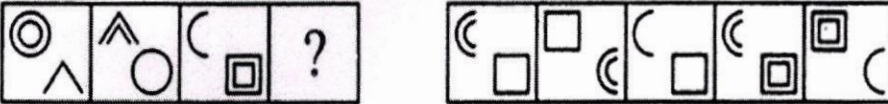
- A. 1
- B. 2
- C. 3
- D. 4

Q2. Based on the figures given in the question find a suitable figure from the five figures in the option.



- A. 1
- B. 2
- C. 3
- D. 4

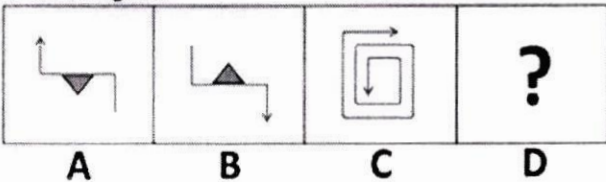
Q3. Select a suitable figure that will replace the question mark of the figure given in the question.



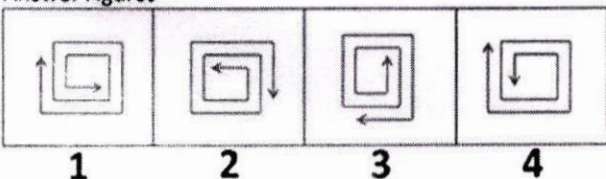
- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

Q4. Find out missing figure (?) of the problem from the given answer figures.

Problem Figures

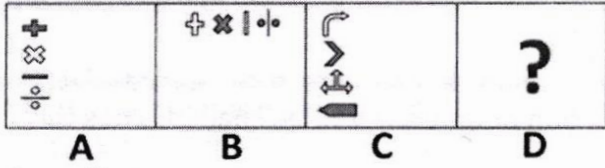


Answer Figures

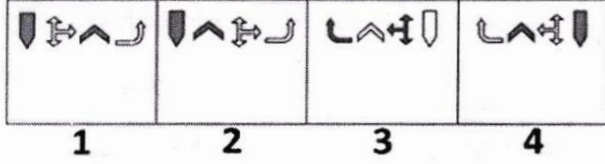


Q5. Find out missing figure (?) of the problem from the given answer figures.

Problem Figures

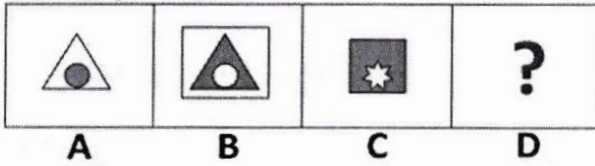


Answer Figures

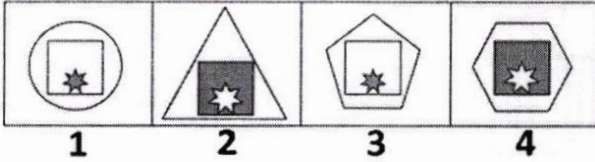


Q6. Find out missing figure (?) of the problem from the given answer figures.

Problem Figures

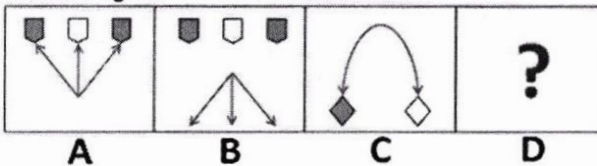


Answer Figures

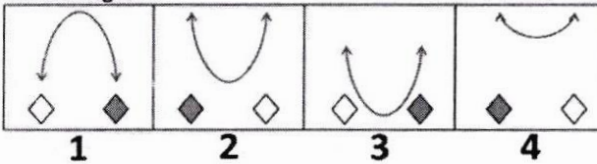


Q7. Find out missing figure (?) of the problem from the given answer figures.

Problem Figures

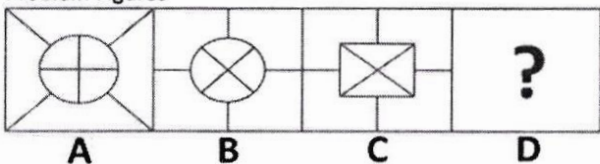


Answer Figures

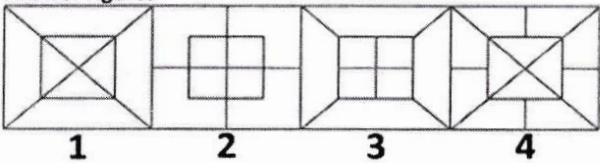


Q8. Find out missing figure (?) of the problem from the given answer figures.

Problem Figures

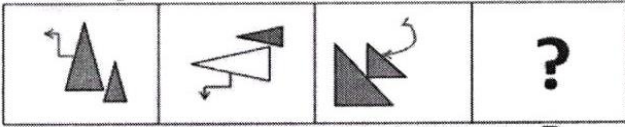


Answer Figures



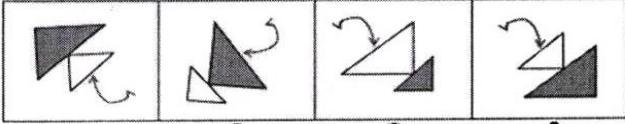
Q9. Find out missing figure (?) of the problem from the given answer figures.

Problem Figures



A B C D

Answer Figures



1 2 3 4

ANSWER

1(C) 2 (C) 3 (B) 4 (2) 5 (3) 6(3) 7(3) 8(3) 9(4)

PAPER FOLDING & CUTTING

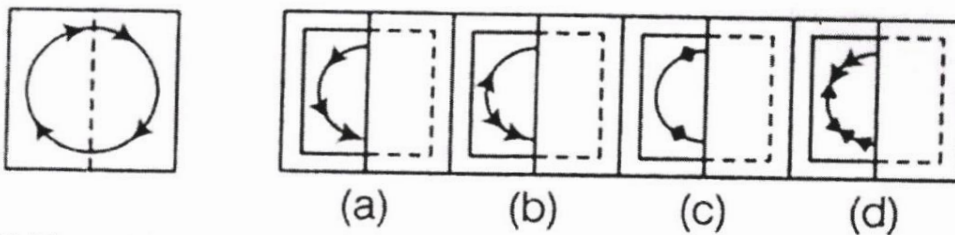
Paper folding & cutting problems are based on a transparent sheet which is folded along a dotted line or folded and cut (or punched) in a particular manner.

A problem based on 'Paper Folding' involves folding a transparent sheet along a dotted line. So, that the design on one side of the dotted line gets superimposed on the design on the other side.

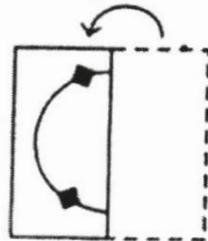
In such type of questions, a transparent sheet having a certain design and dotted line on it is given. The candidates are required to identify the design (on pattern) that would be formed when the sheet is folded along the dotted line.

Example 1. In the following problem, a square transparent sheet with a pattern is given. Figure out from amongst the four alternatives as how the pattern would appear when the transparent sheet is folded along the dotted line.

Transparent Sheet Answer Figures

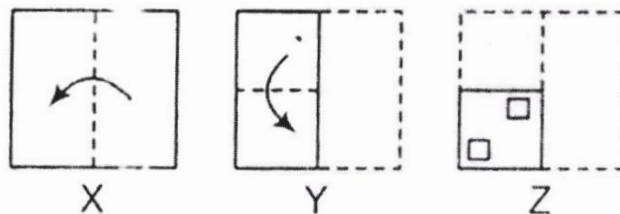


Solution (c) The right half of the transparent sheet is being folded along the dotted line and placed on the left half of the sheet. Thus, the figure obtained resembles the answer figure (C).

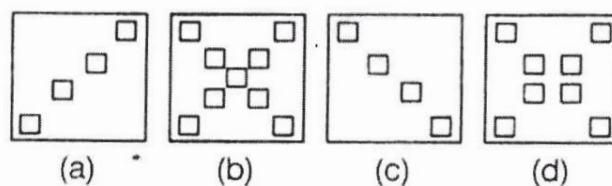


Example 2. In the following questions, a set of three figures (X), (Y) and (Z) have been given, showing a sequence in which paper is folded and finally cut from a particular section. These figures are followed by a set of answer figures marked (a), (b), (c) and (d) showing the design which the paper actually acquires when it is unfolded. You need to select the answer figure which is closest to the unfolded piece of paper.

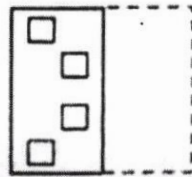
Problem Figures



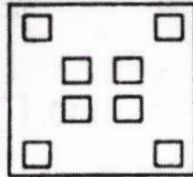
Answer Figure



Solution (d) In figure (X), the square sheet of paper is being folded along the vertical line of symmetry, so that right half of the sheet overlaps the left half. In figure (Y), the sheet is folded further to a quarter. In figure (Z), two squares are punched in the folded sheet. Clearly, the punched squares will be created in each quarter of the paper and after unfolding the first fold the figures will look as,

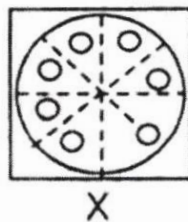


Then after unfolding the last fold the transparent sheet will look as given in option (d) i.e.

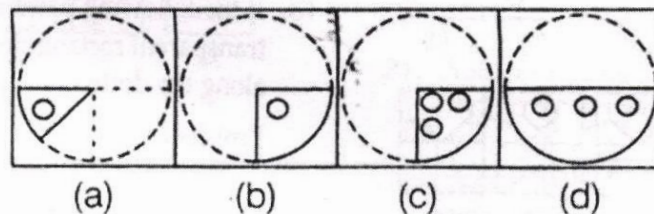


Example 3. A paper sheet is folded in a particular manner and several punches (cuts) are made. When unfolded the paper sheet looks like the question figures (X). From the given options selected the one that follows the manner in which the paper is folded and punched.

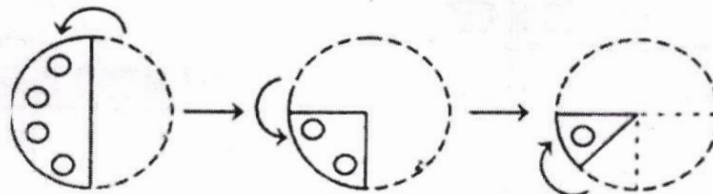
Problem Figures



Answer Figure

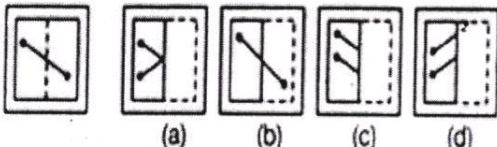


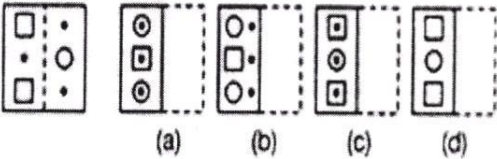
Solution (a) When we fold the question figure, then it looks like as answer figure (a).

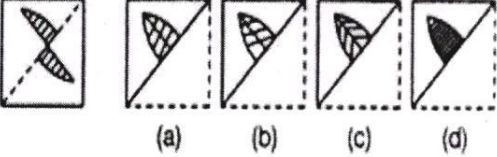


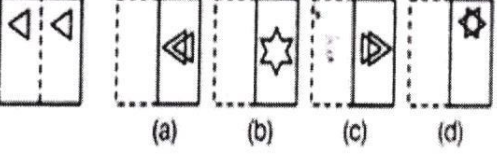
PRACTICE EXERCISE

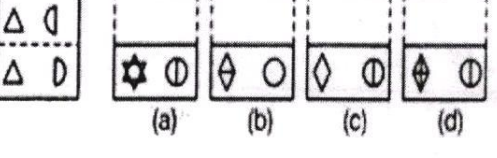
Directions (Q. Nos. 1 - 12) In each of the following question, a figure marked as transparent sheet is given and followed by four answer figures, one out of these four options resembles the figures which is obtained by folding the transparent sheet along the dotted line. Find the answer from these figures.

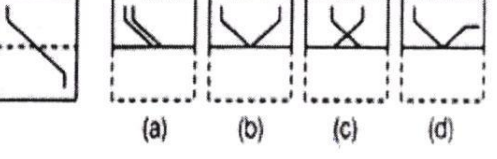
1. 

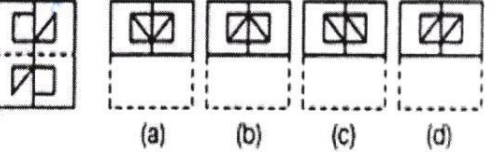
(a) (b) (c) (d)
2. 

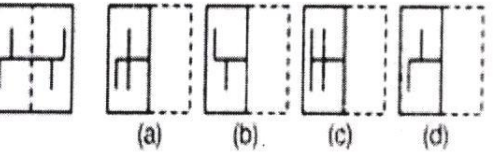
(a) (b) (c) (d)
3. 

(a) (b) (c) (d)
4. 

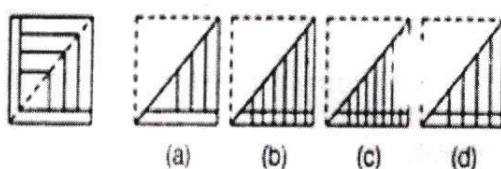
(a) (b) (c) (d)
5. 

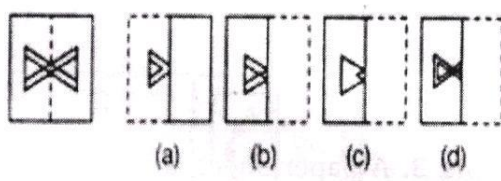
(a) (b) (c) (d)
6. 

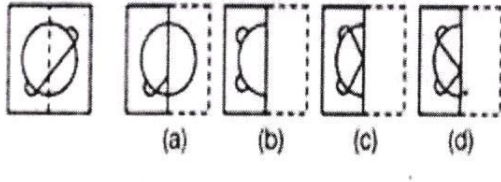
(a) (b) (c) (d)
7. 

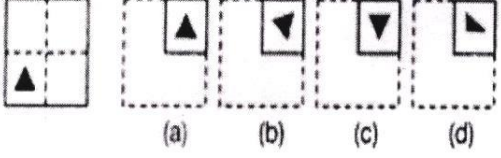
(a) (b) (c) (d)
8. 

(a) (b) (c) (d)

9. 

(a) (b) (c) (d)
10. 

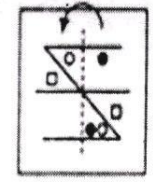
(a) (b) (c) (d)
11. 

(a) (b) (c) (d)
12. 

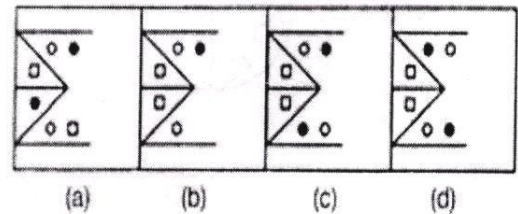
(a) (b) (c) (d)

13. If the following pattern is drawn on a transparent rectangular sheet and folded along the dotted line, how does it appear?

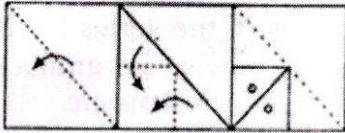
Problem Figure



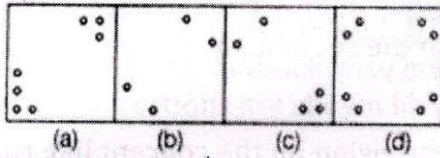
Answer Figures



14. Problem Figures



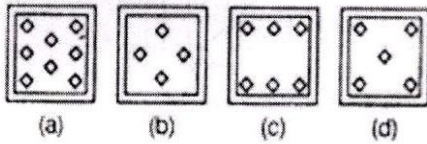
Answer Figures



15. Problem Figures



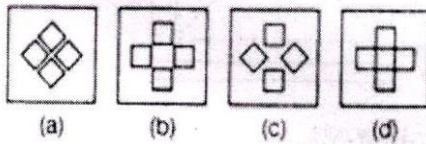
Answer Figures



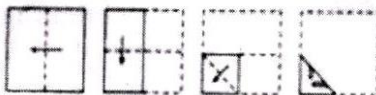
16. Problem Figures



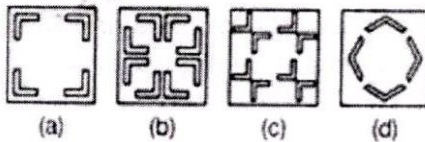
Answer Figures



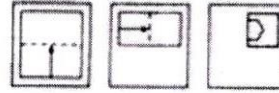
17. Problem Figures



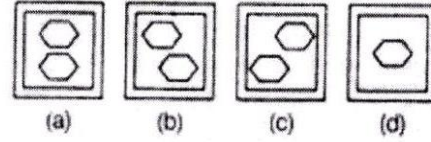
Answer Figures



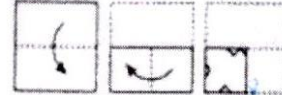
18. Problem Figures



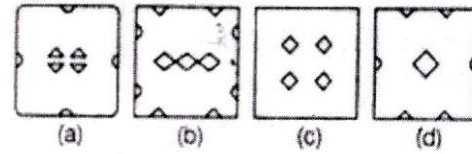
Answer Figures



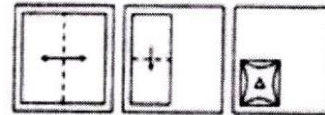
19. Problem Figures



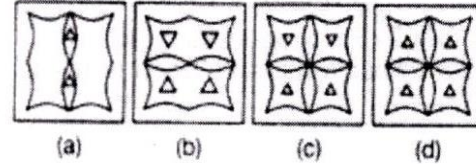
Answer Figures



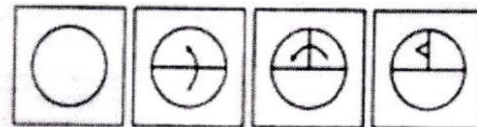
20. Problem Figures



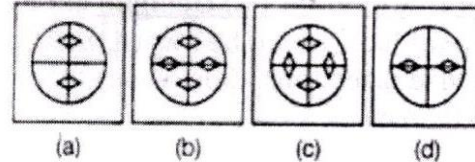
Answer Figures



21. Problem Figures



Answer Figures



ANSWERS

- 1.(a) 2.(c) 3.(d) 4.(d) 5.(a) 6.(b) 7.(a) 8.(c) 9.(a)
 10.(b) 11.(d) 12.(c) 13.(d) 14.(d) 15.(b) 16.(b) 17.(b) 18.(a)
 19.(b) 20.(c) 21.(a)

PICTURE SERIES

Series is a continuous sequence of figures following a certain defined pattern.

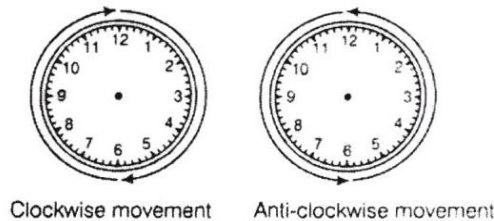
A series of figures is formed when each of the consecutive figures of the series is obtained from the previous figure by following a certain pattern like clockwise or anti-clockwise rotation, movement of symbols inside the figure, addition or deletion of designs etc.

The problems based on series consist of four/five figures following a definite sequence forming a set of problem figures followed by four/five other figures forming a set of answer figures. You are required to select one of the figures from the set of answer figures which will continue the same sequence correctly.

To solve questions on series a candidate must have a clear vision on the concept like rotation, angles, steps of movement, different positions etc. which are discussed below

1. Rotational Direction

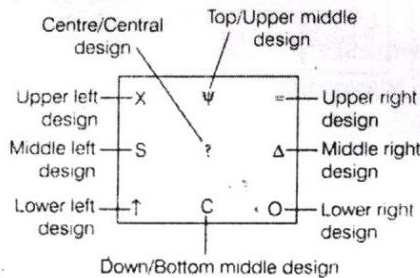
The rotational direction basically states the clockwise (in the direction of motion of clock's hands) and anti-clockwise (opposite to the direction of motion of clock's hands) directions.



2. Position of Designs

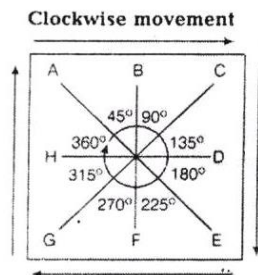
The candidate should be aware of the designs and their positions to gauge their movement.

Different positions have been marked in the given figure.



3. Angular Movement of Designs

The candidate should be aware the angular movement of designs in clockwise and anti-clockwise directions. Clockwise and anti-clockwise movement of angle is shown in the given figure.



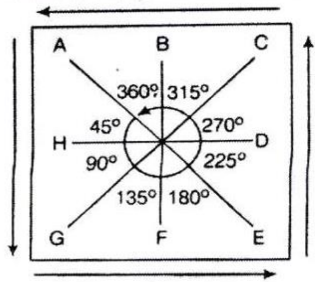
$$A \rightarrow B = 45^\circ, \quad A \rightarrow C = 90^\circ$$

$$A \rightarrow D = 135^\circ, \quad A \rightarrow E = 180^\circ$$

$$A \rightarrow F = 225^\circ, \quad A \rightarrow G = 270^\circ$$

$$A \rightarrow H = 315^\circ, \quad A \rightarrow A = 360^\circ$$

Anti-clockwise movement

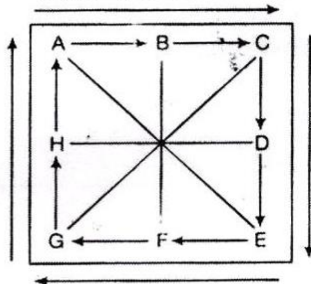


- $A \rightarrow H = 45^\circ$, $A \rightarrow G = 90^\circ$
- $A \rightarrow F = 135^\circ$, $A \rightarrow E = 180^\circ$
- $A \rightarrow D = 225^\circ$, $A \rightarrow C = 270^\circ$
- $A \rightarrow B = 315^\circ$, $A \rightarrow A = 360^\circ$

4. Movement of Designs through Distance

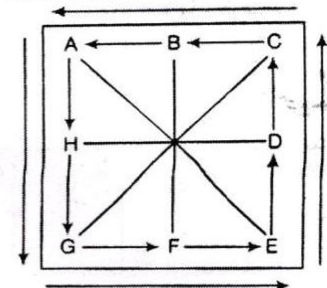
The clockwise and antilock wise movement of designs through in clockwise and anti-clockwise directions are shown below.

Clockwise movement



- $A \rightarrow B = \frac{1}{2}$ arm/step
- $A \rightarrow C = 1$ arm/step
- $A \rightarrow D = 1\frac{1}{2}$ arms/steps
- $A \rightarrow E = 2$ arms/steps
- $A \rightarrow F = 2\frac{1}{2}$ arms/steps
- $A \rightarrow G = 3$ arms/steps
- $A \rightarrow H = 3\frac{1}{2}$ arms/steps
- $A \rightarrow A = 4$ arms/steps

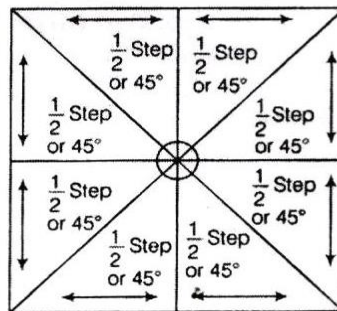
Anti-clockwise movement



- $A \rightarrow H = \frac{1}{2}$ arm/step, $A \rightarrow G = 1$ arm/step
- $A \rightarrow F = 1\frac{1}{2}$ arms/steps, $A \rightarrow E = 2$ arms/steps
- $A \rightarrow D = 2\frac{1}{2}$ arms/steps, $A \rightarrow C = 3$ arms/steps
- $A \rightarrow B = 3\frac{1}{2}$ arms/steps, $A \rightarrow A = 4$ arms/steps

5. Movement of designs through angle and distance

The concept of angular movement and movement of though distance can be combined together and described as below



From the given figure, $45^\circ = \frac{1}{2}$ step,

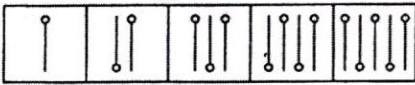
$90^\circ = 1$ step, $135^\circ = 1\frac{1}{2}$ step, $180^\circ = 2$ steps and so on.

These concepts will be very helpful in solving the problems based on symmetry and visual designs.

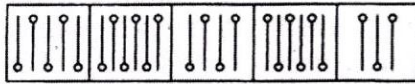
Directions: (Ex 1 - 5) Each of the following questions consists of four/five figures as the problem figures followed by four/ five figures marked (a), (b), (c), (d) and (e) as the answer figures. Select correct answer figure which will continue the series as established by the problem figures.

Ex. 1.

Problem Figure



Answer Figure

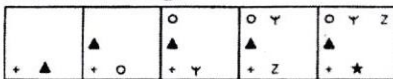


(a) (b) (c) (d) (e)

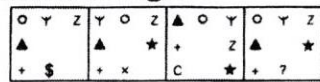
Solution (b) In each successive problem figure, a pin is added on the left hand side of existing pin/pins. The head of the pin is in a direction opposite to adjacent pin.

Ex. 2.

Problem Figure



Answer Figure

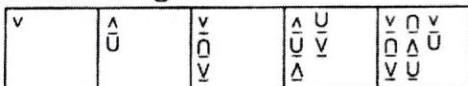


(a) (b) (c) (d)

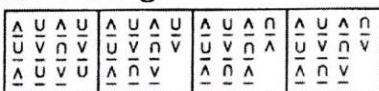
Solution (d) In each successive problem figure, the element at the bottom middle position changes its position and a new element comes at its place.

Ex. 3.

Problem Figures



Answer Figure



(a) (b) (c) (d)

Solution (b) In each successive problem figures, two three, four,... elements are added and the previous elements/designs rotate through 180°.

Ex. 4.

Problem Figures



Answer Figure

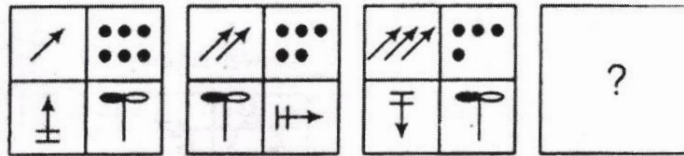


(a) (b) (c) (d) (e)

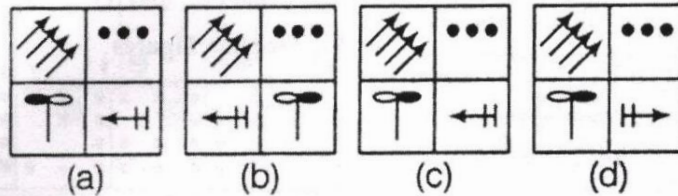
Solution (e) In each successive figure, the lowermost line segment is converted into curve. In the second step, the second line segment also gets converted into a curve and the existing curve is inverted. This process continues and the curve from bottom gets converted into a straight line segment.

Ex. 5.

Problem Figure



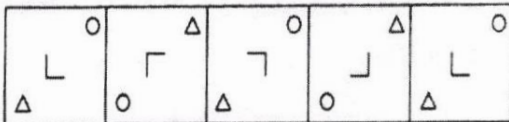
Answer Figure



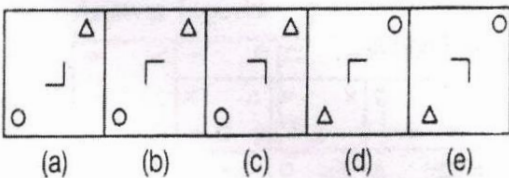
Solution (a) In each successive figure, the number of arrows in top left corner in increases by one and the number of dots in top right corner decreases by one. The arrow in bottom left corner rotates 90 degree in clockwise direction and changes its position from left to right block.

PRACTICE EXERCISE

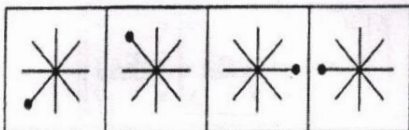
1. Problem Figures



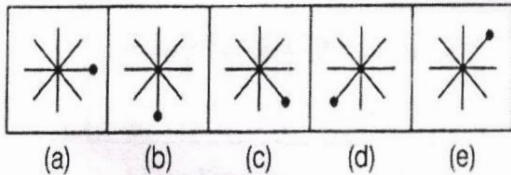
Answer Figures



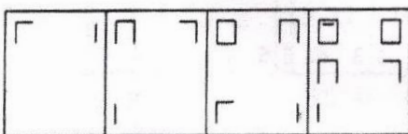
2. Problem Figures



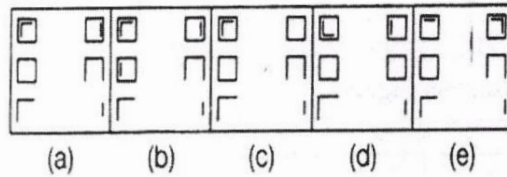
Answer Figures



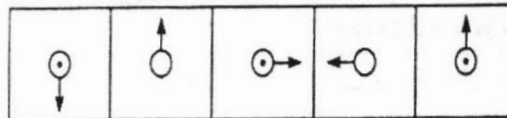
3. Problem Figures



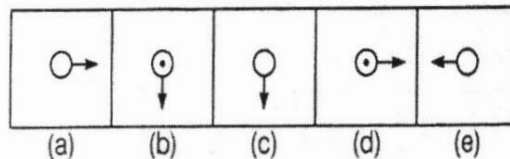
Answer Figures



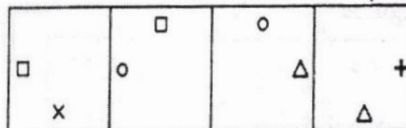
4. Problem Figures



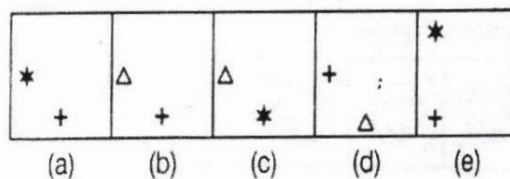
Answer Figures



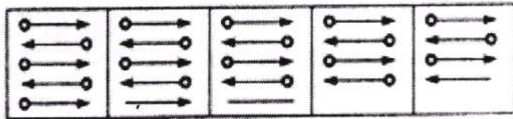
5. Problem Figures



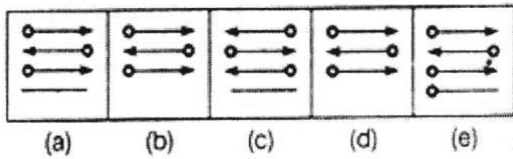
Answer Figures



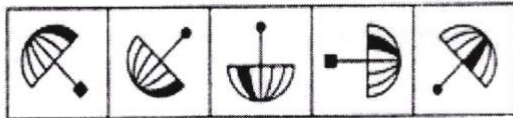
6. Problem Figures



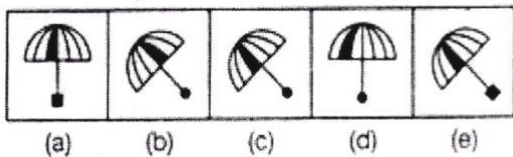
Answer Figures



7. Problem Figures



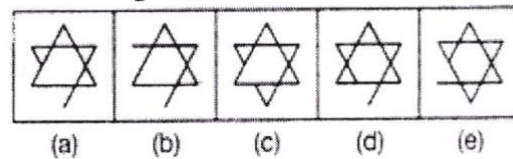
Answer Figures



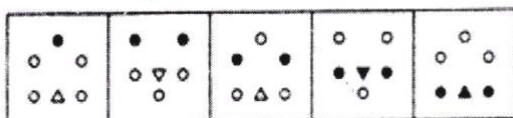
8. Problem Figures



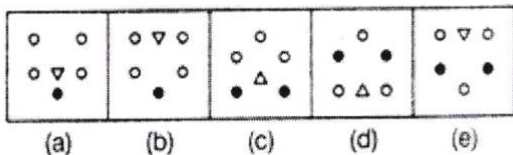
Answer Figures



9. Problem Figures



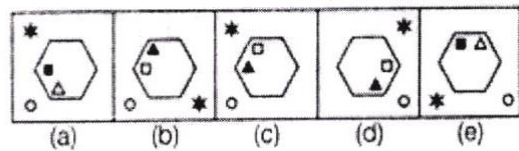
Answer Figures



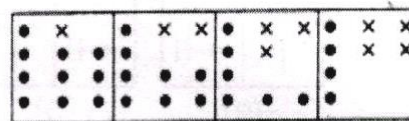
10. Problem Figures



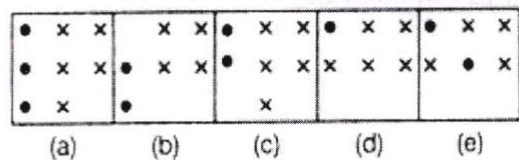
Answer Figures



11. Problem Figures



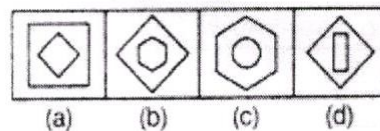
Answer Figures



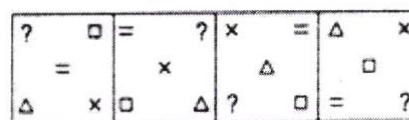
12. Problem Figures



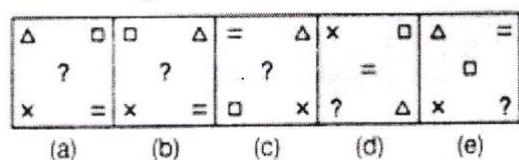
Answer Figures



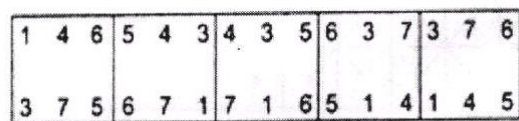
13. Problem Figures



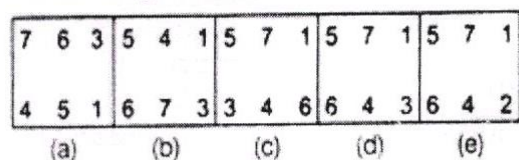
Answer Figures



14. Problem Figures



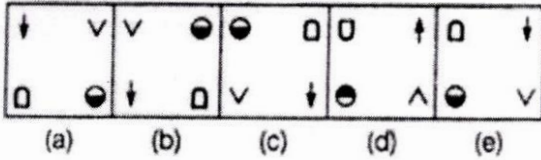
Answer Figures



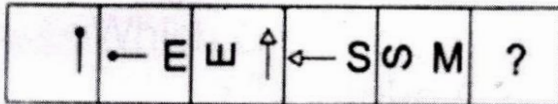
15. Problem Figures



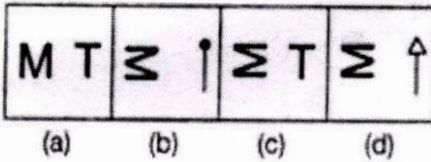
Answer Figures



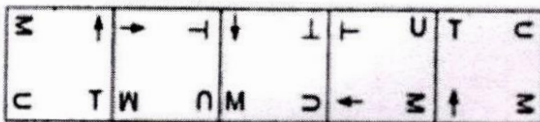
16. Problem Figures



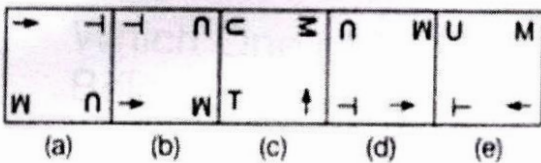
Answer Figures



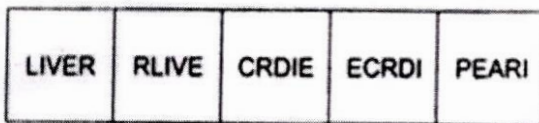
17. Problem Figures



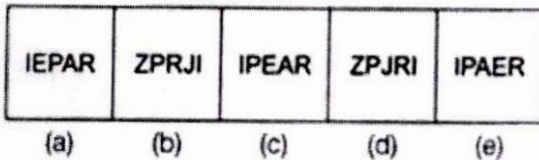
Answer Figures



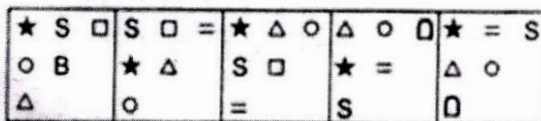
18. Problem Figures



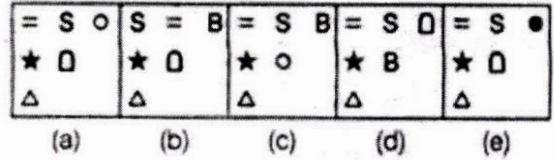
Answer Figures



19. Problem Figures



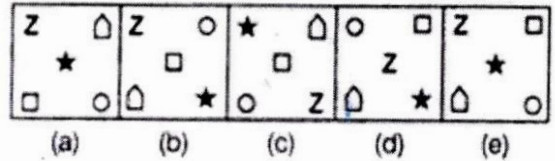
Answer Figures



20. Problem Figures



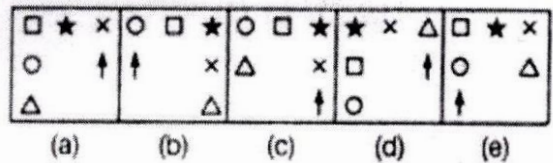
Answer Figures



21. Problem Figures



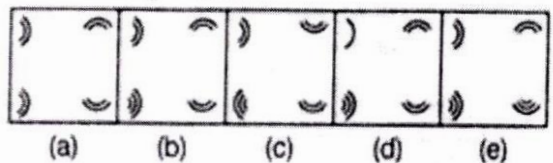
Answer Figures



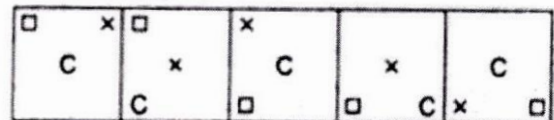
22. Problem Figures



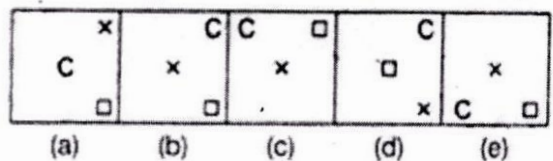
Answer Figures



23. Problem Figures



Answer Figures

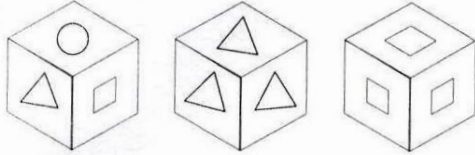


ANSWERS

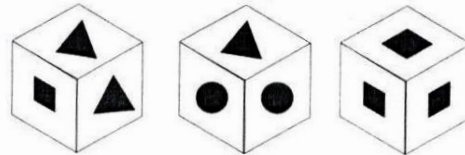
1(b)	2(c)	3(a)	4(c)	5(a)	6(a)	7(c)	8(a)	9(a)
10(c)	11(c)	12(d)	13(b)	14(d)	15(e)	16(c)	17(d)	18(c)
19(e)	20(e)	21(e)	22(b)	23(b)				

PROBLEMS ON CUBES

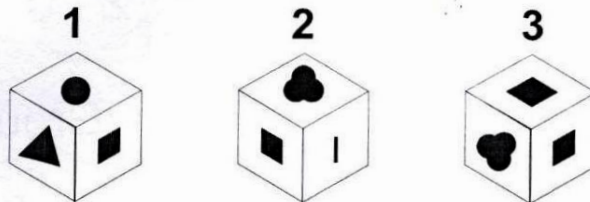
1. Group A



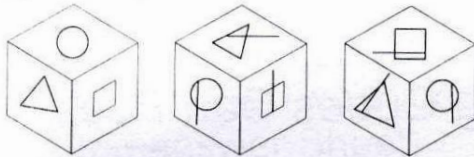
Group B



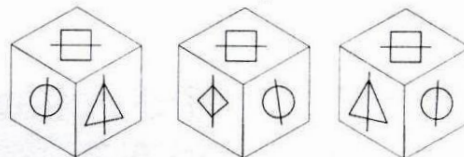
Which One of The Following Cubes Can Possibly Belong To Group A ?



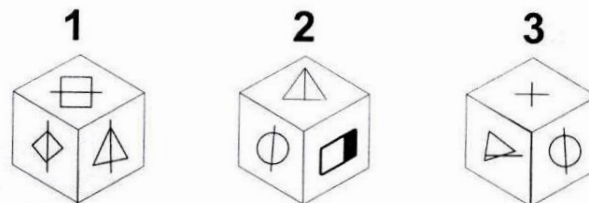
2. Group A



Group B



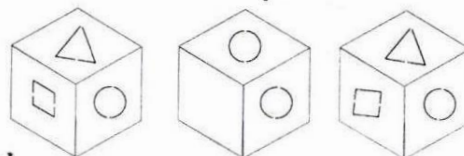
Which One of The Following Cubes Can Possibly Belong To Group A ?



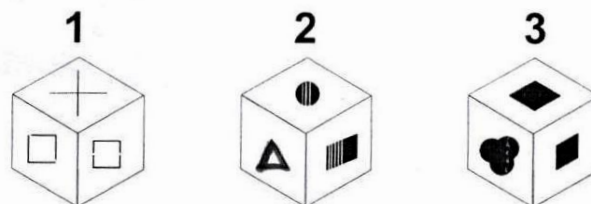
3. Group A



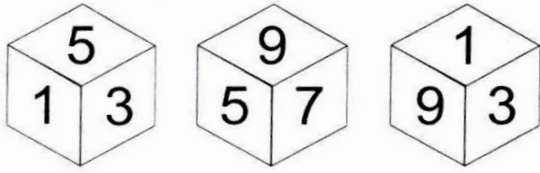
Group B



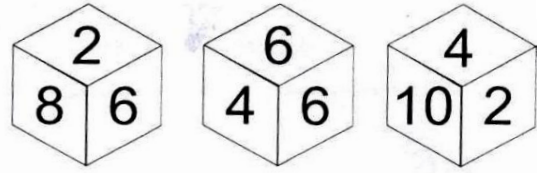
Which One of The Following Cubes Can Possibly Belong To Group A ?



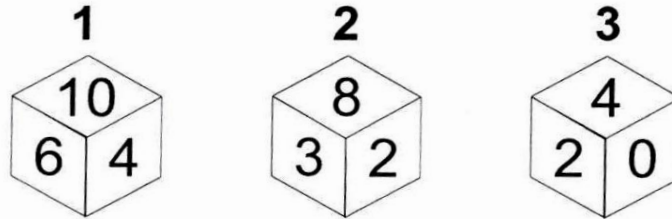
4. Group A



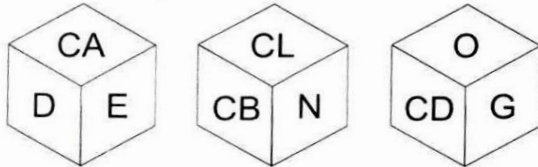
Group B



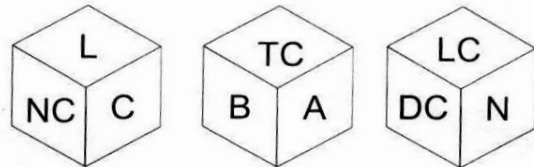
Which One of The Following Cubes Can Possibly Belong To Group A ?



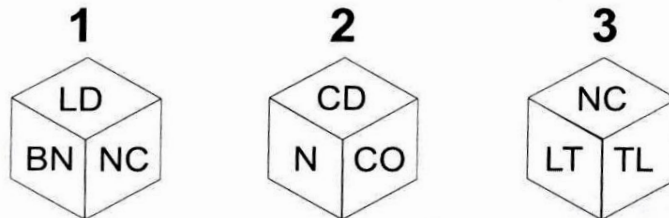
5. Group A



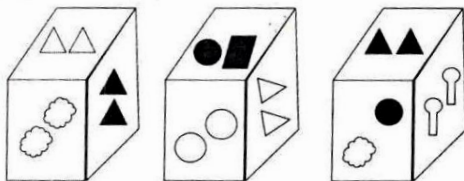
Group B



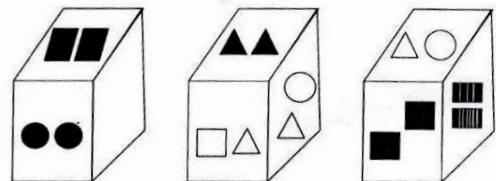
Which One of The Following Cubes Can Possibly Belong To Group A ?



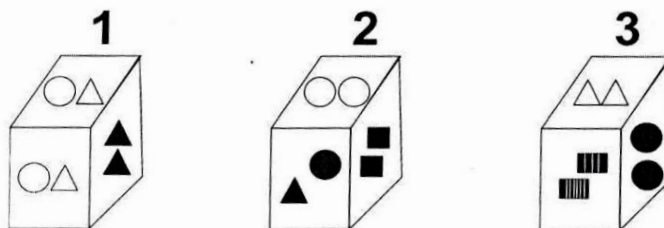
6. Group A



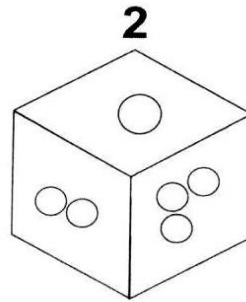
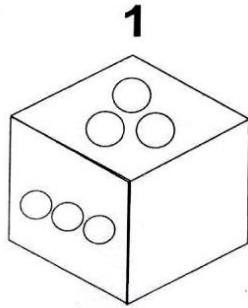
Group B



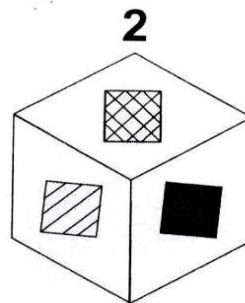
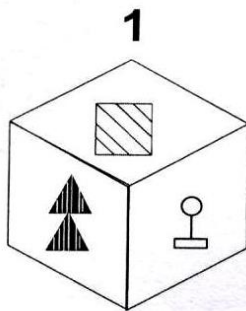
Which One of The Following Cubes Can Possibly Belong To Group A ?



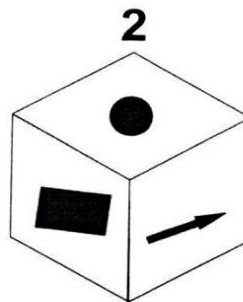
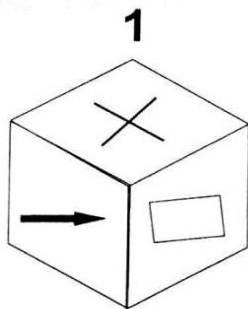
7. Find if the Two cubes are alike, Write 'Yes' or 'No' on the answer Sheet.



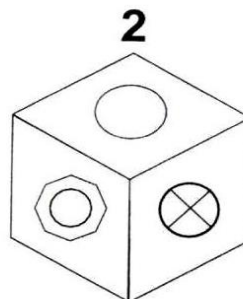
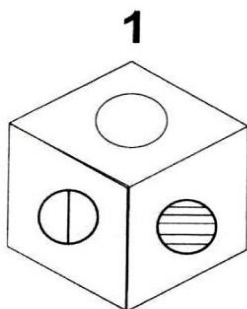
8. Find if the Two cubes are alike, Write 'Yes' or 'No' on the answer Sheet.



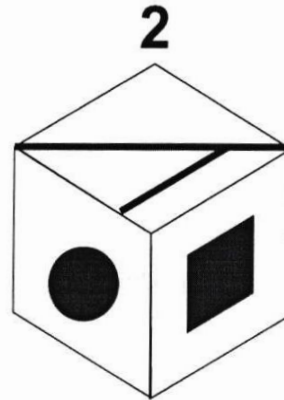
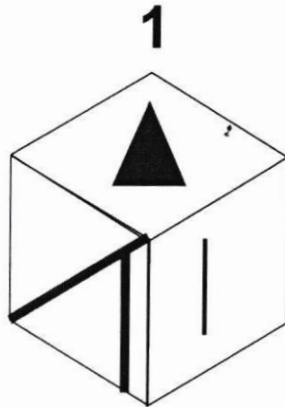
9. Find if the Two cubes are alike, Write 'Yes' or 'No' on the answer Sheet.



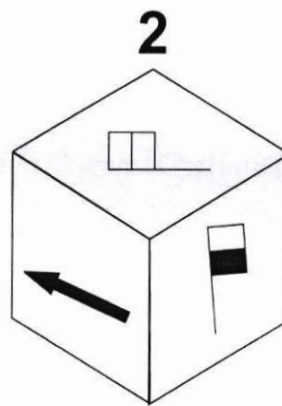
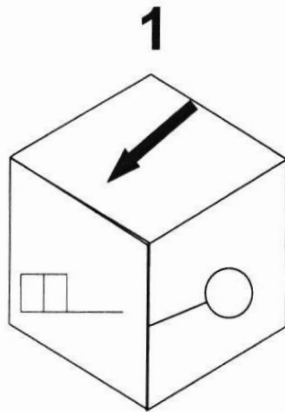
10. Find if the Two cubes are alike, Write 'Yes' or 'No' on the answer Sheet.



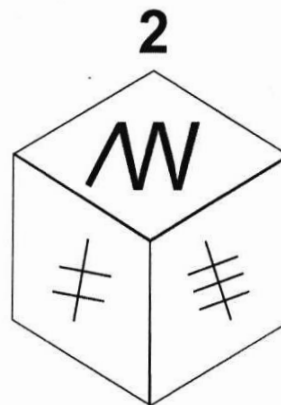
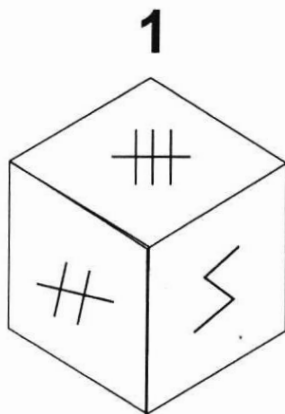
11. Find if the Two cubes are alike, Write 'Yes' or 'No' on the answer Sheet.



12. Find if the Two cubes are alike, Write 'Yes' or 'No' on the answer Sheet.



13. Find if the Two cubes are alike, Write 'Yes' or 'No' on the answer Sheet.



14.

GROUP A

GROUP B

Which one of the following can possibly belong to Group A?

15.

GROUP A

GROUP B

Which one of the following can possibly belong to Group A?

16.

GROUP A

GROUP B

Which one of the following can possibly belong to Group A?

ANSWERS

1. NONE OF THESE
2. 3
3. 2
4. 2
5. 2
6. 2
7. YES
8. YES
9. YES
10. YES
11. YES
12. NO
13. YES
14. 2
15. 2
16. 2

SERIES COMPLETION

(NUMERICAL SERIES)

Complete the Series

1. 3, 5, 10, 9, 15, 12 _____, _____
2. 31, 29, 30, 28, 29, _____, _____
3. 1, 5, 3, 5, 5, 5, 7, 5, _____, _____
4. 9, 1, 8, 2, 7, 3, 6, 4, _____, _____
5. 3, 5, 10, 12, 24, _____, _____
6. 8, 4, 12, 4, 16, _____, _____
7. 25, 27, 23, 30, 21, 33, _____, _____
8. 0, 3, 7, 10, 14, 17, _____, _____
9. 3, 4, 8, 9, 13, 19, _____, _____
10. 5, 5, 12, 12, 18, 19, 23, _____, _____
11. 3, 6, 18, 72, _____, _____
12. C5, E7, H10, L14, _____, _____
13. $\frac{P}{3}, \frac{N}{9}, \frac{K}{27}, -, -$
14. A Z B Y C X _____, _____
15. B C Y X E F V U _____, _____
16. B D G K _____, _____
17. U, R, N, K, H _____, _____
18. Z, T, O, K, H _____, _____
19. E, H, L, O, _____, _____
20. D, G, K, P, _____, _____
21. W, U, R, N, I, _____, _____
22. C2, F3, J4, O _____, _____
23. $\frac{4}{H}, \frac{K}{9}, \frac{19}{O}, \frac{R}{39}, ?$
24. $\frac{3}{7}, \frac{9}{5}, \frac{8}{12}, \frac{16}{12}, \frac{17}{21}, ?$
25. $\frac{A}{2}, \frac{4}{C}, \frac{E}{6}, ?$
26. $\frac{B}{3}, \frac{9}{D}, \frac{F}{81}, ?$
27. $\frac{2}{K}, \frac{M}{4}, \frac{16}{O}, -$
28. 5, 10, 17, 26, 37, _____, _____
29. 11, 19, 29, 41, _____, _____
30. 5, 2, 7, 5, 3, 8, 5, 4, 9, 5, _____, _____

ANSWERS

- | | | | |
|-----|-------------------------------|-----|-------------------|
| 1. | 18,14 | 18. | F |
| 2. | 27, 28 | 19. | S |
| 3. | 9,5 | 20. | U |
| 4. | 5,5 | 21. | O |
| 5. | 26,52 | 22. | V 5,06 |
| 6. | 4,20 | 23. | $\frac{79}{V}$ |
| 7. | 19,36 | 24. | $\frac{27}{23}$ |
| 8. | 21,24 | 25. | $\frac{8}{G}$ |
| 9. | 18,39 | 26. | $\frac{6561}{H}$ |
| 10. | 26,27 | 27. | $\frac{Q}{256}$ |
| 11. | 360,2160 | 28. | 50/65 |
| 12. | Q19, W25 | 29. | 55, 71 |
| 13. | $\frac{G}{81}, \frac{B}{243}$ | 30. | 6/11 |
| 14. | D,W | | |
| 15. | (H,I) , (S,R) | | |
| 16. | P,V | | |
| 17. | D,A | | |