CHAPTER 1

Alphabet & Number Arrangement

INTRODUCTION

As we know that English alphabet is a group of English letters, hence the problems based on alphabet are the problems based on English letters. Problems under this segment are very important part of the questions asked in various competitive exams to be conducted for the purpose of requirement of officers and clerks. Particularly for getting job in banking sector, this type of questions can not be ignored. This is the reason that we will discuss every aspect of such problems so that students do not face any kind of difficulty while solving the problems related to English alphabet.

TYPES OF PROBLEMS :

(1) General series of alphabet
(2) Random series of alphabet
(3) Words in alphabetical order
(4) Problems of word formation
(5) Problems of letter gap

Now we will discuss all the six types of problems one by one in detail.

(1) General Series of Alphabet

EXAMPLE 1. Which of the following options is seventh to the right of the 13th letter from the left in a forward Alphabet series?

(a) R (b) T (c) V
(d) W (e) None of these.

Sol. Now the question is how to solve it?

1st of all we will write the forward alphabet series as given below:

A B C D E F G H I J K L M
↑ ——————————— ↑
13th letter from left

N	O	P	Q	R	S	T	U V W X Y Z
1	2	3	4	5	6	7	

From above series it is clear that M is the 13th letter from left and to the right of M (13th letter from left), T is the 7th letter. Hence (b) is the correct option.

Here, we have solved this problem with a general method. But this type of problem can also be approached through quicker method that will help you save some extra consumed time.

☞ Shortcut Approach

- If both the directions are same then subtraction of numbers takes place.
- If the directions are opposite then addition of numbers takes place.

SHORTCUT METHOD FOR ABOVE EXAMPLE :

Now, for solving the sample question we apply this rule. As we want to find out the 7th letter to the right of the 13th letter from the left, the directions are opposite and thus rule (b) will be applied here. Hence we add 7 + 13 = 20. Therefore, the answer will be 20th from left. Also, 20th from left less mean 26 – 20 + 1 = 7th from right. We can easily see.

∴ 20th letter from left = T

Also 7th letter from right = T

∴ This method also gives the answer choice (b).

After solving the sample question, you must have noticed that the above mentioned trick is to calculate the actual position of the required letter before going to search for it.

OTHER VARIATIONS OF SUCH TYPE OF PROBLEMS

EXAMPLE 2. If alphabet series is given in backward or reverse order, then find out the eighth letter to right of O?

(a) H (b) G (c) U
(d) X (e) None of these

Z Y X W V U T S R Q P O

Sol.

N	M	L	K	J	I	H	G	F E D C B A
1	2	3	4	5	6	7	8	

It's clear (b) is the correct answer.

Note : Even with the forward alphabet series we can solve this problem because the letter which is eight to the right of O in the reverse order alphabet series must be eight to the left of O in forward alphabet series.

EXAMPLE 3. If the 1st half of the alphabet is written in reverse order, then find out the letter that would be 20th letter from the right.

(a) G (b) F (c) D
(d) H (e) None of these

Sol. As the 2nd half is not reversed, the 1st 13 letters would be same when we do counting from right. But not letters coming after 13th will be actually from the left. Hence 14th letter from right would be A; 15th would be B; 16th would be C and we move further in the same manner. Hence from left which is G.

∴ Option (a) is the correct answer.

REMEMBER

I: While solving the problems based on alphabet, you must have in your mind the exact positions of every letters of alphabet in forward order as well as in backward or reverse order as given below:
Letters positions in forward alphabetical order:

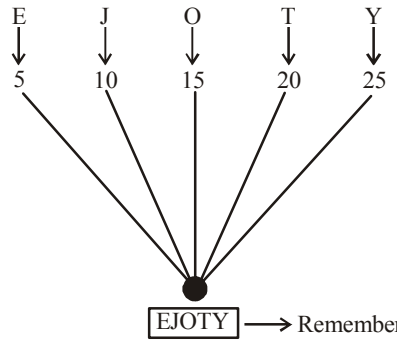
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

Letters positions in backward or reverse alphabetical order:

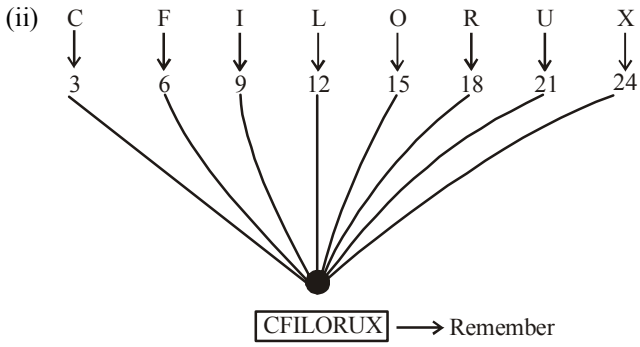
Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

II: Just keep in mind, the following positions of the letters in the English alphabet (forward order).

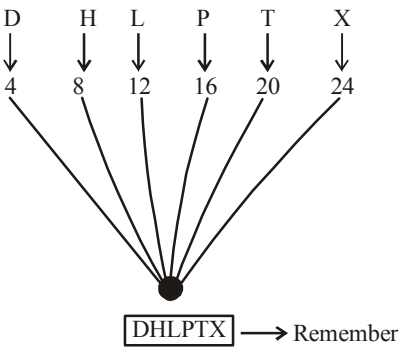
(i)



(ii)



(iii)



III: *m*th element to be counted from left to right of a series of *x* characters is equal to $(x + 1 - m)$th element to be counted from right to left of that series. This rule can be better illustrated by an example which is given below:
Let us take the forward order alphabet series,

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

As we know that English alphabet has 26 characters, hence, we have $x = 26$.
Now suppose, we have to find out the position of K in the above given series counting from right to left.
Position of 'K' in the English alphabet from left to right is 11. Thus $m = 11$
$\therefore$ Position of K in the above given series from right to left would be $(26 + 1 - 11) = 16$

Note : *I, II & III given under extra tips are very important as they are very helpful in solving problems based on general series of alphabet. Readers are advised to take them as a rule.*

HOW TO SOLVE PROBLEMS WHEN LETTERS ARE DROPPED OR DELETED AT REGULAR INTERVALS?

EXAMPLE 4. If every 3rd letter from left to right of English alphabet is deleted, then what would be the 6th letter from left in the new series obtained?

Sol. General method:

A B Ⓒ D E Ⓕ G H Ⓘ J K Ⓛ M N Ⓞ
P Q Ⓡ S T Ⓤ V W Ⓧ Y Z

Here, deleted letters have been encircled and we find the new series as given below:

A	B	D	E	G	H	J	K	M	N	P	Q	S	T	V	W	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

It is clear, that 6th letter from left in the new series is H.

☞ Shortcut Approach

No doubt, that general method gives the correct answer. But we need to save extra consumed time and this is the reason we go for a quicker approach.

As per the example, every third letter is deleted in the original series. It does mean that we are left of two letters after every deletion. Here, '2' is the key digit for us and we have to find out 6th letter from the left in the new obtained series. Therefore, we have to find a digit which is just less than 6 but divisible by 2. For this question the digit just less than 6 and divisible by 2 is 4. Now we follow the operation given below:

6th letter from the left in the new series = $6+\frac{4}{2}$

= 8th letter from the left in the original series, which is it.

In the same manners, we can find out any letter at a particular position in the new obtained series.

$\therefore$ 16th letter from the left in the new obtained series = $16+\frac{14}{2}$

= 23rd letter from the left in the original series which is W.

18th letter from the left in the new obtained series

$= 18+\frac{16}{2}$

= 26th letter from the left in the original series which is Z.

The sample example can be asked in following way also:

"If every third letter from left to right in English alphabet is dropped (or deleted), then find out the 13th letter from right in the new obtained series".

To solve this, we find first of all the number of letters in the new obtained series.

As every third letter is dropped, hence we have

$\left(26-\frac{26}{3}\right) = 26-8 = 18$ letters in the new series.

Point to be noted here that we divide 26 by 2 as every 3rd letter is dropped and after division we take approximate value of $\frac{26}{3}$ in round figure (approximate value of $\frac{26}{3}$ will be 8).

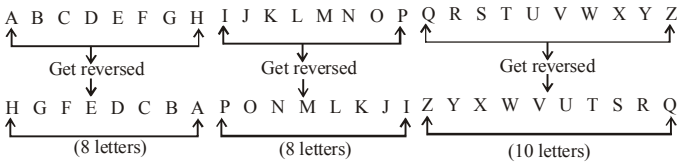
As per the example we have to find out 13th letter from right in the newly obtained series. This loss mean (18 + 1 – 13) = 6th letter from left which is H.

Note: *This quicker approach can also be applied to the dropping of every 4th, 5th, 6th, 7th..... and so on letters from left to right at regular intervals.*

HOW TO SOLVE PROBLEMS BASED ON THE BACKWARD (REVERSED) ALPHABET SERIES?

While solving problems based on general series of alphabet, we come across the various cases. In some cases we see that whole alphabet series is reversed but in some other cases 1st half of the series is reversed, or second half of the series is reversed or many segments of the alphabet series are reversed.

Let us take a case when a forward order alphabet series get reversed in three segments. In 1st segment 8 letters get reversed; in 2nd segment the next 8 letters get reversed and in the 3rd segment the remaining 10 letters get reversed. Just see the presentation given below:



Now if you are asked to find out the 4th letter from left in the new obtained series, then through general method, we simply do counting from left in the new series and find out our required answer as 'E' because 'E' is at 4th position from left in the new obtained series. But while solving such type of problems, we have to do some time consuming formalities like (a) writing the original series (b) writing and reversing the letters of original series as per the question says and (c) counting them to get the required answer. Such time consuming processes can be avoided if we go through "**Extra Tips III**" and solve the question with shortcut approach.

☞ Shortcut Approach

It is clear that 4th letter from left in the new obtained series falls into first segment which has 8 letters. Hence 4th letter in the new obtained series = (8 + 1 – 4) = 5th letter from the left in the original series. As we know that exact position of 5th letter from left in the original alphabet series is the position of E. Hence E is our required answer.

If we have to find out 18th letter from left in the new obtained series, then that will be 16 + (10 + 1 – 2) = 25th letter from left in the original alphabet series (why?) which is Y.

In fact, while finding out 18th letter, we can easily see that 18th letter is the 2nd letter of 3rd segment and hence it will be not affected by 1st two segments having 8 letters each. In other words to find out 18th letter in the new obtained series, we have to find out the 2nd letter in the 3rd segment. This is the reason we find out the 2nd letter in the 3rd segment and then add the 16 letters of 1st two segment to get the 18th letter in the new obtained series. From this, we find that 18th letter from left in the new obtained series is the 25th letter from left in the original series. As 25th letter from left in the original series is Y. So (Y) will be our required answer.

Readers are advised to practice such type of problems as you much as possible and after a certain time will notice that you have got a skill to solve such problems in a few seconds and that too, without the use of pen and paper.

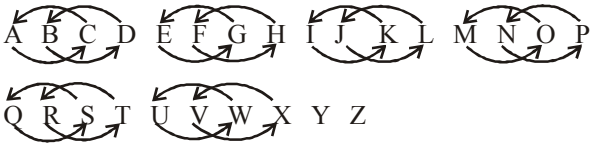
HOW TO SOLVE IF POSITIONS OF LETTERS ARE INTERCHANGED?

There is no any rule for such type of problems. Only the hard practice can given you a skill to solve such questions in a quick time.

EXAMPLE **5. If A and C interchange their places, B and D interchange their places, F and H interchange their places and so on, then which letter will be 5th to the left of Q?**

(a) P (b) N (c) M
(d) T (e) None of these.

Sol. As per the question the interchanges take place as follows:



Here we can see that Q interchanges with S. Then to left of Q, the 5th letter would be P because P interchanges with N.

How to find the Middle Letter?

Case I : Remember that if *m*th and *n*th letter from the left in the English alphabet are given then

$$\text{Middle letter} = \left(\frac{m+n}{2}\right) \text{th letter from the left.}$$

EXAMPLE 6. Which letter will be midway between 8th letter from the left and 16th letter from the left in the English alphabet?

Sol. Here $m = 8$ and $n = 16$

$$\text{then middle letter} = \frac{8+16}{2} = \frac{24}{2} = 12\text{th letter from left in the alphabet} = \text{L}$$

Case II: Remember that if *m*th and *n*th letter from the right in the English alphabet are given then

$$\text{Middle letter} = \left(\frac{m+n}{2}\right) \text{th letter from right}$$

$$= \left[26+1-\left(\frac{m+n}{2}\right)\right] = \left[27-\left(\frac{m+n}{2}\right)\right] \text{th}$$

letter from the left in the English alphabet.

EXAMPLE 7. Which letter will be midway between 8th letter from the right and 16th letter from the right in the English alphabet.

Sol. $\text{Middle letter} = \left[27-\left(\frac{8+16}{2}\right)\right]$ th letter from left in the alphabet.

or middle letter = $(27 - 12) = 15^{\text{th}}$ letter from left = 0

Note : In case I and case II (m + n) must be divisible by 2.

Case III : Remember that if the *m*th letter from the left and the *n*th letter from the right are given then middle letter

$$= \left[\frac{(m-n)+27}{2}\right] \text{th letter from the left in the alphabet.}$$

EXAMPLE 8. Which letter will be midway between 8th letter from the left and 15th letter from the right?

Sol. Here $m = 8$ and $n = 15$.

$$\text{Then middle letter} = \left[\frac{(8-15)+27}{2}\right] = \left[\frac{20}{2}\right] = 10^{\text{th}}$$

letter from left in the English alphabet = J.

Note : In case III (m – n) + 27 must be divisible by 2.

Ranking Arrangement

Condition: To use below Table break the statement into two parts by **'OF'** and the rank to be calculated from the last rank provided.

FIRST HALF STATEMENT	SECOND HALF STATEMENT	ACTION TO BE TAKEN
LEFT	LEFT	SUBTRACTION
RIGHT	RIGHT	SUBTRACTION
LEFT	RIGHT	ADDITION
RIGHT	LEFT	ADDITION
TO	FROM	NO ACTION
FROM	FROM	CONDITIONAL*

CONDITIONAL* means when the two ranks are added then subtract 1 rank to the addition or when the two ranks are subtracted then add 1 to the subtraction.

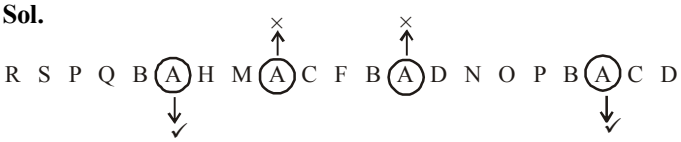
(2) Random Series of Alphabet

This series is not in the proper sequence and letters take their position in the series in jumbled manner. Further, there is also a possibility that all the 26 letters of English alphabet are not available in the series. Even same letters may be repeated in the series.

EXAMPLE 9. How many letters in the following series are immediately preceded by B but not immediately followed by D?

R S P Q B A H M A C F B A D N O P B A C D.

Sol.



∴ Only the two times A fulfill the given condition and those A have been marked with the correct sign (✓). Those not fulfilling the condition have been marked with the cross sign (×). ∴ Required answer is 2.

(3) Words in Alphabetical Order

In such type of questions, words are given and you have to find out which word will appear in the dictionary 1st . 1st or 2nd or 3rd or 4th etc.

EXAMPLE 10. Which of the following words will come 2nd in the dictionary?

(a) Name (b) Shame (c) Fame
(d) Came (e) None of these.

Sol. 'Came' comes 1st in the dictionary.

'Fame' comes 2nd in the dictionary

'Name' comes 3rd in the dictionary

'Shame' comes 4th in the dictionary

∴ (c) is the required answer.

EXAMPLE 11. Find out the word coming last in the dictionary.

(a) Large (b) Long (c) Lust
(d) Love (e) None of these

Sol. **Step I :** In this question the 1st letter of all the words are same. Hence, from 1st letter we can not find out this arrangement in the dictionary.

Step II: We move on the 2nd letter of the words and find that 2nd letter of Large is 'a'; 2nd letter of Long is 'o'; 2nd letter of Lust is 'u' 2nd letter of Love is 'o'. Now its clear that in the dictionary 'a' comes before 'o' & u. Hence the word 'Large'comes 1st in the dictionary.

Step III: Now we will compare the remaining three words 'Long', Lust and 'Love'. Here, when we see the 2nd letter of these words we find 'o' comes before 'u' in the dictionary. Hence we can come to the conclusion that the words 'Long' and 'Love' will not definitely be the last word. Thus we came to our required answer that the word 'Lust' or option (c) will definitely come last in the dictionary.

∴ Option (c) will be our answer. But if we want to know the 2nd and 3rd word also then we can move on to the next step.

Step IV: In the words 'Long' and 'Love', 1st two letters are common. Therefore, to know the arrangement of these two words in the dictionary we move on to the third letter. Third letter in the word 'Long' is 'n' and in 'Love' the third letter is 'v'. As 'n' comes before 'v' alphabetically, the word 'Long' will come before the word 'Love' in the dictionary. Hence, it is clear that 'Long' comes 2nd and 'Love' comes 3rd in the dictionary.

Step V: Find arrangement : (1) Large (2) Long (3) Love (4) Lust.

(4) Problems of Word Formation

In such problems, a word is given and you have to find out the number of words to be formed out of some letters drawn from that particular word.

EXAMPLE 12. How many meaningful words can be formed from the 3rd, 4th, 6th and 8th letter of the word 'CONTROVERSIAL'?

Sol. C O (N) (T) R (O) V (E) R S I A L
3rd 4th 6th 8th

Now from letters N T O and E, two words 'NOTE' and 'TONE' can be formed.

(5) Case I : Problems of Letter Gap

EXAMPLE 13. How many pairs of letters are there in the word 'DREAMLAND' which have as many letters between them as in the English alphabet?

Sol. Here, we are asked to solve problem according to English alphabet. In this case we have to count both ways. It does mean that we have to count from left to right and from right to left. Let us see the following presentation:

D R E A M L A N D

The above presentation makes it clear that the required pairs of letters are 4. (Pairs: DA, EA, ML and LN)

Case II:

EXAMPLE 14. How many pairs of letters are there in the word 'DREAMLAND' which have the same number of letters between them as in the English alphabet in the same sequence.

Sol. Here we are asked to solve problems according to the alphabetical sequence. It does mean that we have to do counting only from left to right. Let us, see the following presentation:

D R E A M L A N D

The above presentation makes it clear that the required pair of letters is only 1 (Pair: LN)

EXERCISE

Directions (Qs. 1-5): Answer these questions referring to the symbol-letter-number sequence given below:

1. If every third letter from the following English alphabet is dropped, which letter will be seventh to the right of eleventh letter from your right?
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
(a) V (b) U
(c) K (d) I
(e) None of these

2. If the first half of the English alphabet is reversed and so is the second half, then which letter is seventh to the right of twelfth letter from the left side?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
(a) S (b) V
(c) U (d) T
(e) None of these

3. In the alpha-numerical sequence/series given below, how many numbers are there which are (i) immediately followed by a letter at the even place in English alphabet and (ii) not immediately preceded by a letter at the odd place in the English alphabet?
W 2 N 1 V 9 G 2 P 4 X 6 K 7 R 1 T 8 L 3 H 5 Q 8 U 2 J
(a) 3 (b) 5
(c) 2 (d) 4
(e) None of these

4. If the positions corresponding to the multiples of five in the following alphabet are replaced by symbols and that of multiples of seven by digits, how many letters will be left?
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
(a) 15 (b) 18
(c) 21 (d) 17
(e) None of these

5. If second half of given sequence of alphabets is reversed then which of the following letter will be 9th letter to the right of 7th letter from your left ?
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
(a) T (b) S
(c) Y (d) X
(e) W

Directions (Qs. 6-10): Study the following arrangement carefully and answer the questions given below:

J 1 # P 4 E K 3 A D $ R U M 9 N 5 I % T V * H 2 ÷ F 6 G 8 Q W

6. How many such numbers are there in the above arrangement, each of which is either immediately preceded by or immediately followed by a vowel or both?
(a) None (b) One
(c) Two (d) Three
(e) More than three

7. Which of the following is exactly in the middle between the tenth from the left and the eighth from the right end in the above arrangement?
(a) M (b) N
(c) I (d) 5
(e) None of these

8. If the order of the last fifteen elements in the above arrangement is reversed, which of the following will be the ninth to the right of the eleventh element from the left end?
(a) *G* (b) %
(c) 8 (d) 3
(e) None of these

9. How many such consonants are there in the above arrangement, each of which is immediately preceded by a symbol but not immediately followed by either a number or a vowel?
(a) None (b) One
(c) Two (d) Three
(e) More than three

10. Four of the following five are alike in a certain way based on their position in the above arrangement and so form a group. Which is the one that **does not** belong to that group?
(a) *A* $ *E* (b) % *V N*
(c) 2 *F V* (d) 4 *K* 1
(e) 6 *Q* ÷

Directions (Qs. 11-14): Study the following information and answer the questions given below:

25 boy-scouts bearing names from A to Y were standing in a row. The teacher wanted to select various teams from among them. He gave them random numbers from 3 to 8 as shown below:

A B C D E F G H I J K L M N O P Q R S T U V W X Y
4 4 6 3 5 4 3 3 5 6 7 5 8 5 8 3 3 8 4 8 6 5 4 6 6

11. If he decides to pick up those exclusive pairs of adjacent boys whose numbers if totalled turn out to be exactly 12, how many such pairs would be available?
(a) Nil (b) Six
(c) Five (d) Four
(e) None of these

12. If he decides to pick up those boys who bear even numbers and have boys bearing even numbers on both sides, how many boys will be picked up?
(a) One (b) Two
(c) Three (d) Four
(e) None of these

13. If he decides to pick up. those boys who bear odd numbers but have boys bearing 7 and/or 8 on either side, how many boys will be picked up?
(a) Four (b) Three
(c) Two (d) One
(e) None of these

14. If he decides to pick up only those boys who bear even numbers but have on both sides students bearing odd numbers, how many boys will be picked up?
(a) Six (b) Five
(c) Four (d) Three
(e) None of these

Directions (Qs.15-17): Study the following five numbers and answer the questions given below.

517 325 639 841 792

15. What will be last digit of the third number from top when they are arranged in descending order after reversing the position of the digits within each number?
(a) 7 (b) 3
(c) 5 (d) 2
(e) None of these

16. What will be the middle digit of the second lowest number after the position of only the first and the second digits within each number are interchanged?
(a) 5 (b) 2
(c) 7 (d) 3
(e) None of these

17. What will be the first digit of the second highest number after the position of only the second and the third digits within each number are interchanged?
(a) 7 (b) 2
(c) 8 (d) 9
(e) None of these

Directions.(Qs.18-22): Study the following elements (letters, digits and symbols sequence) to answer the questions given below:

A B 7 C D 9 Z Y ★ P 2 M © K S 3 ↑ 5 N T @

Note: 'A' is to the left of 'B' and '@' is to right of 'T'.

18. If each symbol of the above sequence is replaced with a letter and each digit is replaced with a new symbol, then how many letters will be there in the sequence?
(a) 16 (b) 17
(c) 4 (d) 12
(e) None of these

19. How many such digits are there in the sequence each of which is immediately preceded as well as followed by letters?
(a) None (b) One
(c) Two (d) Three
(e) None of these

20. Which of the following letters is exactly midway between the letters falling between 'C' and '5'?
(a) Y (b) K
(c) P (d) M
(e) None of these

21. If each symbol of the above sequence is replaced with the digits from '1' to '9' which are not there in the sequence, then what will be the sum of all digits? [Each symbol should be replaced with a different digit].
(a) 19 (b) 45
(c) 55 (d) 60
(e) None of these

22. If the first element from the left interchanges place with the tenth element from the left, similarly, second with ninth, third with eighth, fourth and seventh, and so on, then which of the following will be seventh to the left of eight element from the right?
(a) 9 (b) 7
(c) D (d) C
(e) None of these

Directions (Qs. 23-27): Study the following arrangement of letters/symbols and answer the questions given below:

D F J T $ # P R Z Q * C M A B @ H K L S + ?

23. How many such symbols are there each of which is immediately preceded by a symbol and immediately followed by a letter?
(a) One (b) Two
(c) Three (d) Four
(e) None of these

24. If the order of the first half of the arrangement is reversed which of the following letters/symbols will be the fifth to the left of the fifteenth letter/symbol from the left?
(a) * (b) Q
(c) T (d) J
(e) None of these

25. If all the symbols of the above sequence are denoted by 7 and each letter is denoted by 5, then what will be the sum of all the elements of the sequence?
(a) 142 (b) 138
(c) 132 (d) 122
(e) None of these

26. If all the symbols from the above sequence are dropped, which letter will be seventh to the right of twelfth letter from the right?
(a) H (b) B
(c) K (d) A
(e) None of these

27. Which of the following is related to 'FT' in the same way as 'DJ' is related to '? S' ?
(a) L+ (b) KS
(c) HL (d) +L
(e) None of these

Directions (Qs. 28-32): Study the following arrangement carefully and answer the questions given below:

M £ 5 T R E 3 $ P J 1 7 D 1 2 N A 4 F H 6 * U 9 # V B @ W

28. If the positions of the first fourteen characters of the above arrangement are reversed, which of the following will be the twenty-second from the right end?
(a) J (b) I
(c) P (d) 3
(e) None of these

29. How many such numbers are there in the above arrangement, each of which is immediately preceded by a vowel and immediately followed by a consonant?
(a) None (b) One
(c) Two (d) Three
(e) More than three

30. What should come in place of the question mark (?) in the series given below based on the above arrangement?

R 3 £ P I E ? A F I

(a) DNJ (b) D21
(c) IN1 (d) N4D
(e) None of these

31. How many such consonants are there in the above arrangement each of which is immediately preceded by a symbol but not immediately followed by a number?
(a) None (b) One
(c) Two (d) Three
(e) More than three

32. Which of the following is the fifth towards right of the seventeenth from the right end?
(a) $ (b) 4
(c) 7 (d) A
(e) None of these

Directions (Qs. 33-35): Study the following letters/number series carefully and answer the questions given below it.

W 3 7 H J Q T 5 1 2 G K 4 F P T 6 L B E 9 4 D M R 8 2 V

33. If the numbers from the first half of the sequence are dropped, which letter/number will be fifth to the right of sixth letter/number from the left?
(a) 6 (b) T
(c) Q (d) J
(e) None of these

34. How many such letters are there in the sequence which are immediately followed by a number and immediately preceded by a letter ?
(a) Four (b) Two
(c) Three (d) Five
(e) None of these

35. Four of the following five are alike in a certain way on the basis of their position in the sequence and so form a group. Which is the one that does not belong to the group ?
(a) WVH (b) JMI
(c) HRT (d) 78Q
(e) 59G

Directions (Qs. 36-38): Study the following arrangement of digits, letters and symbols and answer the questions given below:

M K 3 $ R E 5 F % T U J * 8 P H B N 2 I S # A 3 7 D 4

36. How many such consonants are there each of which is either immediately preceded by a number and/or immediately followed by a symbol?
(a) None (b) One
(c) Two (d) Three
(e) None of these

37. Four of the following five are alike in a certain way based on the above arrangement and form a group.
Which is the one that **does not** belong to that group?
(a) 3RF (b) %U8
(c) 8H2 (d) I # 7
(e) H8U

38. If the positions of F and B are interchanged, similarly, the positions of U and A are interchanged, how many such vowels will be there each of which will be both immediately preceded and immediately followed by a consonant?
(a) None (b) One
(c) Two (d) Three
(e) None of these

Directions (Qs. 39-40) : Study the following arrangement carefully and answer the questions given below:

BA5D%RI FH6#V9$3E7G1÷2MKX8UFWZN

39. Which of the following is exactly in the middle of the eleventh element from the left end and the fifteenth element from the right end?
(a) V (b) $
(c) 7 (d) E
(e) None of these

40. Four of the following five are alike in a certain way based on their position in the above arrangement and so form a group. Which is the one that does not belong to that group?
(a) EG$ (b) RFD
(c) 127 (d) XUM
(e) H#

41. If it is possible to make a meaningful word with the second, the fourth, the sixth and the ninth letters of the word PERMEABILITY, which of the following will be the first letter of that word? If no such word can be formed give 'N' as the answer. If only two such words can be formed give 'D' as the answer and if more than two such words can be formed give 'Z' as the answer.
(a) M (b) L
(c) N (d) D
(e) Z

42. Find the two letters in the word EXTRA which have as many letters between them in the word as in the alphabet. If these two letters are arranged in alphabetical order which letter will come second?
(a) E (b) X
(c) T (d) R
(e) A

43. If it is possible to make a meaningful word with the third, the fifth, the sixth and the eleventh letters of the word MERCHANDISE, using each letter only once, which of the following will be the third letter of that word? If no such word can be formed, give 'X' as answer and if more than one such word can be formed, mark 'T' as answer.
(a) H (b) E
(c) R (d) X
(e) T

44. If it is possible to make a meaningful word with the first, the fifth, the ninth and the eleventh letters of the word PENULTIMATE, using each letter only once, which of the following will be the third letter of that word? If no such word can be made give '*N*' as the answer and if more than one such word can be formed give '*D*' as the answer.
(a) E (b) P
(c) L (d) D
(e) N

45. How many such pairs of letters are there in the word CREDIBILITY each of which has only one letter between them in the word as also in the alphabet?
(a) None (b) One
(c) Two (d) Three
(e) More than three

46. If the letters in the word POWERFUL are rearranged as they appear in the English alphabet, the position of how many letters will remain unchanged after the rearrangement?
(a) None (b) One
(c) Two (d) Three
(e) More then three

47. How many such pairs of letters are there in the word PRODUCTION each of which has as many letters between them in the word as in the English alphabet?
(a) None (b) One
(c) Two (d) Three
(e) More than three

48. If it is possible to make only one meaningful word with the fourth, the fifth, the seventh and the eleventh letters of the word PREDICTABLE, which of the following will be the first letter of that word? If only two such words can be formed, give '*P*' as the answer; if three or more than three such words can be formed, give '*Z*' as the answer; and if no such word can be formed, give '*X*' as the answer.
(a) D (b) T
(c) P (d) Z
(e) X

49. If it is possible to make a meaningful word from the first, the fourth, the eighth, the tenth and the thirteenth letters of the word ESTABLISHMENT, using each letter only once, the last letter of that word is your answer. If more than one such word can be formed write 'P' as your answer and if no such word can be formed write 'X' as your answer.
(a) X (b) P
(c) T (d) E
(e) M

50. How many meaningful words can be formed by replacing only the consonants in the word BREAK by the next letter in the English alphabet and keeping the vowels unchanged?
(a) None (b) One
(c) Two (d) Three
(e) More than there

51. How many such pairs of letters are there in the word ORIENTAL each of which has as many letters between them in the word as in the English alphabet?
(a) None (b) One
(c) Two (d) Three
(e) More than three

52. The positions of the first and the eighth letters in the word WORKINGS are interchanged. Similarly, the positions of the second and the seventh letters are interchanged, the positions of the third letter and the sixth letter are interchanged, and the positions of the remaining two letters are interchanged with each other. Which of the following will be the third letter to the left of *R* after the rearrangement?
(a) G (b) S
(c) I (d) N
(e) None of these

53. If only the consonants in the word MEAT are changed in such a way that each of the them becomes the next letter in the English alphabet and the remaining letters are kept unchanged, then how many meaningful words can be formed with the new set of letters using each letter only once in a word?
(a) None (b) Two
(c) Three (d) One
(e) None of these

54. If the first and the second letters of the word UNPRECEDENTED are interchanged with the last and the secondlast letters, and similarly the third and the fourth letters are interchanged with the third and the fourth letters from the last respectively, and so on, then what will be the 7th letter to the right of the 3rd letter from the left?
(a) P (b) R
(c) E (d) C
(e) None of these

55. In the word 'PRESENCE', how many such pairs of letters are there as have as many letters between its units in the word as there are in the English alphabet?
(a) One (b) Two
(c) Three (d) Four
(e) None of these

56. If the letters in each of the following five words are first rearranged in the alphabetical order and then the groups of letters so formed are rearranged as in a dictionary, which word would have its group of letters in the MIDDLE among the five?
(a) Code (b) Lack
(c) Meet (d) Deaf
(e) Road

57. How many such pairs of letters are there in the word 'CORPORATE' each of which has as many letters in the same sequence between them in the word as in the English alphabet?
(a) None (b) One
(c) Two (d) Three
(e) More than three

58. If it is possible to make only one meaningful word with the second, the seventh, the tenth and the eleventh letters of the word 'TRADITIONAL', what will be the second letter of the word? If no such word can be formed, give 'X' as the answer. If only two such words can be formed give 'Y' as the answer and if more than two such words can be formed give 'Z' as the answer.
(a) L (b) I
(c) X (d) Y
(e) Z

59. How many pairs of letters are there in the word SPONTANEOUS which have number of letters between them in the word one less than the number of letters between them in Engiish alphabet?
(a) Five (b) One
(c) Four (d) Two
(e) Three

60. If each of the vowels i.e., A, E, I, O & U alongwith the 3rd letter to its right in the alphabet are taken out and arranged one after the other in the same order followed by the remaining letters of the alphabet, which of the following will be 5th to the left of the 19th letter from the left in the new arrangement?
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
(a) G (b) H
(c) J (d) W
(e) None of these

61. If it is possible to make a meaningful word from the third, sixth, eighth and eleventh letters of the word 'DISTINGUISH' using each letter only once, first letter of the word would be

your answer. If more than one such word can be formed, your answer would be 'M' and if no such word can be formed, answer is 'X'.
(a) N (b) S
(c) H (d) M
(e) X

62. The letter of the word A Y D F L R I G E N are in disorder. If they are arranged in proper order, the name of a vegetable is formed.
What is the last letter of the word so formed ?
(a) L (b) A
(c) G (d) R
(e) D

63. If it is possible to make a meaningful word with the second, the seventh, the ninth and the eleventh letters of the word ORGANISATION, which of the following will be the third letter of that word? If no such word can be formed, give 'X' as the answer and if more than one such word can be made, given answer as 'M'.
(a) S (b) R
(c) T (d) X
(e) M

64. By arranging the letters of the word IG SIM W NM the name of a game is formed, what are the first and last letter of the word so formed ?
(a) MS (b) SG
(c) NI (d) NG
(e) None of these

65. If it is possible to make a meaningful word from the second, fourth, tenth and twelfth letters of the word ADVERTISEMENT, using each letter only once, write the last letter of the word as your answer. If more than one such word can be formed, write 'P' as your answer and if no such word can be formed, write 'X' as your answer.
(a) P (b) X
(c) N (d) M
(e) D

66. How many pairs of letters are there in the word CRYSTALLIZE, which have as many letters between them as in the alphabet?
(a) 1 (b) 2
(c) 3 (d) 4
(e) None of these

67. If letters in the word UNIVERSAL are arranged in the alphabetical order and each letter is assigned numerical value equal to its serial number from the left in this rearranged order, what is the difference in the total of numerical values of vowels and that of consonants?
(a) 19 (b) 17
(c) 21 (d) 20
(e) None of these

68. How many pairs of letters are there in the word EXCLUSIVE which have as many letters between them as in the alphabet?
(a) 2 (b) 3
(c) 4 (d) Nil
(e) None of these

69. If it is possible to make a meaningful word from the fifth, seventh, eighth, ninth and thirteenth letters of the word 'EXTRAORDINARY' using each letter only once, write the second letter of that word as your answer. If no such word can be formed write 'X' as your answer and if more than one such word can be formed, write 'M' as your answer.
(a) A (b) I
(c) R (d) M
(e) X

70. The letters of the name of a vegetable are I, K, M, N, P, P, U. If the letters are rearranged correctly, then what is the last letter of the word formed ?
(a) M (b) N
(c) K (d) P
(e) None of these

71. If it is possible to make a meaningful word with the second, the fifth and the eighth letters of the word 'CARETAKER', which of the following will be the first letter of that word? If no such word can be made, give X as answer. If more than one such word can be made, give M as the answer.
(a) A (b) E
(c) X (d) M
(e) None of these

72. If it is possible to make a meaningful word with the first, the fourth, the seventh and the eleventh letters of the word 'INTERPRETATION', which of the following will be third letter of that word? If more than one such word can be made give M as the answer and if no such word can made, give X as the answer.
(a) I (b) R
(c) X (d) M
(e) None of these

73. If the second, third, fifth, eighth and ninth letters of the word CONTEMPLATION are combined to form a meaningful word, what will be the middle letter of that word ? If more than one such words can be formed, your answer is X and if no such word can be formed, your answer is Y.
(a) X (b) O
(c) A (d) Y
(e) None of these

74. How many such pairs of letters are there in the word CORPORATE each of which has as many letters in the same sequence between them in the word as in the english alphabet ?
(a) None (b) One
(c) Two (d) Three
(e) None of these

75 Select the combination of numbers so that letters arranged accordingly will form a meaningful word.
R A C E T
1 2 3 4 5
(a) 1, 2, 3, 4, 5 (b) 3, 2, 1, 4, 5
(c) 5, 2, 3, 4, 1 (d) 5, 1, 2, 3, 4
(e) None of these

76. Rearrange the first four letters, in any way, of the word DECISION. Find how many words can be formed by using all the four words.
(a) One (b) Two
(c) Three (d) More than three
(e) None of these

77. If it is possible to form a word with the first, fourth, seventh and eleventh letters of the word 'SUPERFLOUS', write the first letter of that word. Otherwise, X is the answer.
(a) S (b) L
(c) O (d) X
(e) None of these

78. How many independent words can 'HEARTLESS' be divided into without changing the order of the letters and using each letter only once ?
(a) Two (b) Three
(c) Four (d) Five
(e) None of these

79. How many independent words can 'STAINLESS' be divided into without changing the order of the letters and using each letter only once ?
(a) Nil (b) One
(c) Two (d) Three
(e) None of these

80. Select the combination of numbers so that the letters arranged accordingly will form a meaningful word.
V A R S T E
(a) 2, 3, 1, 6, 4, 5 (b) 4, 5, 2, 3, 1, 6
(c) 6, 3, 4, 5, 2, 1 (d) 3, 2, 4, 5, 6, 1
(e) None of these

81. If by arranging the letters of the word NABMODINT, the name of a game is formed, what are the first and the last letters of the word so formed?
(a) B, T (b) B, N
(c) N, D (d) M, T
(e) None of these

82. Which one of the given responses would be a meaningful order of the following ?
1. apartment 2. town
3. street 4. building
5. complex
(a) 1, 5, 4, 3, 2 (b) 4, 5, 3, 2, 1
(c) 2, 1, 3, 4, 5 (d) 1, 4, 5, 3, 2
(e) None of these

83. If the following words are arranged in reverse dictionary order, which word comes second ?
(a) Explosion (b) Express
(c) Exploit (d) Expulse
(e) None of these

84. A group of alphabets are given with each being assigned a number. These have to be unscrambled into a meaningful word and correct order of letters may be indicated from the given responses.
T M H R E O
5 4 3 2 1 0
(a) 025314 (b) 315402
(c) 405312 (d) 504231
(e) None of these

85. From the given alternative words, select the word which cannot be formed using the letters of the given word :
TRIVANDRUM
(a) RAIN (b) DRUM
(c) TRAIN (d) DRUK
(e) None of these

86. How many meaningful English words can be made with the letters ' OEHM ' using each letter only once in each word ?
(a) FOUR (b) THREE
(c) TWO (d) ONE
(e) None of these

87. Which one of the given responses would be a meaningful order of the following ?
1. Orange 2. Indigo 3. Red 4. Blue 5. Green 6. Yellow 7. Violet
(a) 7, 2, 4, 5, 6, 1, 3 (b) 7, 2, 4, 6, 5, 1, 3
(c) 7, 2, 6, 4, 5, 1, 3 (d) 7, 2, 6, 4, 1, 5, 3
(e) None of these

88. Arrange the following words as per order in the dictionary.
1. Forecast 2. Forget 3. Foreign 4. Forsook 5. Force
(a) 3, 5, 1, 2, 4 (b) 5, 1, 3, 2, 4
(c) 5, 1, 3, 4, 2 (d) 5, 1, 2, 3, 4
(e) None of these

89. From the given alternatives select the word which can be formed using the letters given in the word.
ULTRANATIONALISM
(a) ULTRAMONTANE (b) ULTRAMODERN
(c) ULTRAIST (d) ULULATE
(e) None of these

90. From the given alternatives select the word which cannot be formed using the letters of the given word.
LEGALIZATION
(a) ALERT (b) ALEGATION
(c) GALLANT (d) NATAL
(e) None of these

CHAPTER 2

Analogy & Classification

ANALOGY

The meaning of analogy is 'similar properties' or similarity. If an object or word or digit or activity shows any similarity with another object or word or digit or activity in terms of properties, type, shape, size, trait etc., then the particular similarity will be called analogy. For example, cricket : ground and chess: table are the analogous pairs (why?). In fact, both pairs of words have similar relationship in terms of place of playing as cricket is played in the ground and similarly chess is played on the table. In this chapter, we will discuss different types of analogy because problems based on analogy are an important category of questions to be asked in almost all examinations of competitive level.

TYPES OF ANALOGY

1. Tool & Object Based Analogy

This establishes a relationship between a tool and the object in which it works. Similar relations has to be discovered from answer choices.

Examples:

Scissors	:	Cloth
Saw	:	Wood
Eraser	:	Paper

2. Synonym Based Analogy

In such type of analogy two words have similar meaning.

Examples:

Huge	:	Gigantic
Endless	:	Eternal
Benevolent	:	Kind
Notion	:	Idea

3. Worker & Tool Based Analogy

This establishes a relationship between a particular tool and the person of that particular profession who uses that tool.

Examples:

Writer	:	Pen
Painter	:	Brush
Cricketer	:	Bat
Barber	:	Scissors

4. Worker & Product Based Analogy

This type of analogy gives a relationship between a person of particular profession and his/her creations.

Examples:

Writer	:	Book
Author	:	Novel
Singer	:	Song
Poet	:	Poem

5. Causes & Effect Based Analogy

In such type of analogy 1st word acts and the 2nd word is the effect of that action.

Examples:

Work	:	Tiredness
Bath	:	Freshness
Race	:	Fatigue
Shoot	:	Kill

6. Opposite Relationship (Antonym) Based Analogy

In such type of analogy the two words of the question pair are opposite in meaning. Similar relations has to be discovered from the answer choice word pairs.

Examples:

Poor	:	Rich
Fat	:	Slim
Tall	:	Short
Big	:	Small

7. Gender Based Analogy

In such type of analogy, one word is masculine and another word is feminine of it. In fact, it is a 'male and female' or 'sex' relationship.

Examples:

Man	:	Woman
Bull	:	Cow
Duck	:	Drake

8. Classification Based Analogy

This type of analogy is based on biological, physical, chemical or any other classification. In such problems the 1st word may be classified by the 2nd word and vice-versa.

Examples:

Oxygen	:	Gas
Water	:	Liquid
Snake	:	Reptile
Parrot	:	Bird

9. Function Based Analogy

In such type of analogy, 2nd word describes the function of the 1st word.

Examples:

Singer	:	Sings
General	:	Commands
Player	:	Plays
Surgeon	:	Operates

10. Quantity and Unit Based Analogy

In such type of analogy 2nd word is the unit of the first word and vice-versa.

Examples:

Distance	:	Mile
Mass	:	Kilogram
Length	:	Meter

11. Finished Product & Raw Material Based Analogy

In such type of analogy the 1st word is the raw material and 2nd word is the end product of that raw material and vice-versa.

Examples:

Yarn	:	Fabric
Milk	:	Curd
Flour	:	Bread
Latex	:	Rubber
Grape	:	Wine
Fruit	:	Juice

12. Utility Based Analogy

In such type of analogy the 2nd word shows the purpose of the 1st word or vice-versa.

Examples:

Pen	:	Writing
Food	:	Eating
Chair	:	Sitting
Bed	:	Sleeping

13. Symbolic Relationship Based Analogy

In such type of analogy, the 1st word is the symbol of the 2nd word and vice-versa.

Examples:

White	:	Peace
Red	:	Danger
Black	:	Sorrow
Red cross	:	Hospital

14. Adult & Young One Based Analogy

In such type of analogy, the 1st word is the adult one and 2nd word is the young one of the 1st word or vice-versa.

Examples:

Cow	:	Calf
Human	:	Child
Dog	:	Puppy
Duck	:	Duckling

15. Subject & Specialist Based Analogy

In such type of analogy the 2nd word is the specialist of 1st word (subject) or vice-versa.

Examples:

Heart	:	Cardiologist
Skin	:	Dermatologist

16. Habit Based Analogy

In this type of analogy 2nd word is the habit of 1st and vice-versa.

Examples:

Cat	:	Omnivorous
Tiger	:	Carnivorous
Cow	:	Herbivorous

17. Instrument and Measurement Based Analogy

We see in this type of analogy, the 1st word is the instrument to measure the 2nd word and vice-versa:

Examples:

Hygrometer	:	Humidity
Barometer	:	Pressure
Thermometer	:	Temperature
Sphygmomanometer	:	Blood pressure

18. Individual & Group Based Analogy

Second word is the group of 1st word (or vice-versa) in such type of analogy.

Examples:

Cow	:	Herd
Sheep	:	Flack
Grapes	:	Bunch
Singer	:	Chorus

19. State & Capital Based Analogy

1st word is the state and 2nd word is the capital of that state (1st word) (or vice-versa) in the analogy like this.

Examples:

Bihar	:	Patna
West Bengal	:	Kolkata
Maharashtra	:	Mumbai
Karnataka	:	Bengaluru

Note: Analogy based on country and capital is very similar to this type of analogy in which we put name of the country in place of the name of state and country capital in place of state capital. For example India: New Delhi and Nepal : Kathmandu.

20. Analogy Based on Individual & Dwelling Place

In such type of analogy 1st word is the individual & 2nd word is the dwelling place of that individual (1st word) and vice-versa.

Examples:

Horse	:	Stable
Bee	:	Apiary
Dog	:	Kennel
Birds	:	Aviary

21. Analogy Based on Worker and Working Place

In this type of analogy the 1st word represents a person of particular profession and 2nd word represents the working place of that person (1st word) and vice-versa.

Examples :

Doctor	:	Hospital
Clerk	:	Office
Cook	:	Kitchen
Professor	:	College

22. Analogy Based on Topic Study

1st word is the study of the 2nd word (or vice-versa) in the analogy like this.

Examples:

Birds	:	Ornithology
Earth quakes	:	Seismology
Eggs	:	Zoology

23. Analogy Based on Letters (or Meaningless Words)

Case I : (Forward alphabetical sequence)

Examples:

CD : FG : : PQ : UV

Here CD and FG are in the natural alphabetical sequence. Similarly, PQ & UV are in the natural alphabetical sequence.

Case II: (Backward or opposite alphabetical sequence)

Example:

DC : GF : : QP : VU

In fact this case is opposite of case I

Case III: (Vowel – consonant relation)

Example

ATL : EVX : : IPR : ORS

Here, the 1st two words start with the 1st two vowels A & E and the next two words start with the next two vowels I & O. Last two letter of every word are consonants.

Case IV: Example (Skip letter relation)

ABC : FGH : : IJK : NOP

Here between ABC & FGH two letters skip and they are D & E. Similarly, between IJK & NOP two letters skip and they are L & M.

Case V: (Jumbled letters relation)

Example:

(i) LAIN : NAIL : : EVOL : LOVE

Here the 1st term gets reveresed to produce the 2nd term and similar relation is shown in between 3rd and 4th term.

(ii) ABCD : OPQR : : WXYZ : KLMN

In (ii) each letter of the 1st group 'ABCD' is moved fourteen steps forward to obtain the corresponding letter of the 2nd group 'OPQR'. A similar relation is established between the third group 'WXYZ' and the fourth group 'KLMN.'

NOTE : *Every type of analogy discussed in (23) may have different variations of problems and you can get perfection on them by proper practice only.*

EXAMPLE 1. Lion is to flesh as cow is to .....

(a) snake (b) grass
(c) worm (d) animal
(e) None of these

Sol. Lion eats flesh, similarly, cow eats grass. Hence option (b) is the right answer.

EXAMPLE 2. Pen : Writer : : ..... : Batsman

(a) Brush (b) Fighter
(c) Stick (d) Bat
(e) None of these

Sol. Option (d) is the correct answer because a writer uses pen to write and similarly a batsman uses bat to play.

EXAMPLE 3. NCDP : ODEQ : : ..... : MPRO

(a) LOQN (b) NQOL
(c) OQNL (d) QNOL
(e) None of these

Sol. Option (a) is the correct answer as letters of 1st term go one step forward to be the 2nd term. Similarly, the letters of 3rd term will go one step forward to be the 4th term (Letters of step go one step backward to be the 3rd term).

EXAMPLE 4. Bulky : Fat : : Happiness : ?

(a) Bad (b) Ugly
(c) Joy (d) Sorrow
(e) None of these

Sol. (c) is the correct option because 'Bulky' is the synonym of 'Fat' and similarly 'Happiness' is the synonym of 'joy'.

Now, we can say that we have discussed almost all type of analogy to be asked frequently in the examinations. But examinees must prepare for any surprise kind of problems while solving the problems under this segment. But by practicing more & more, you can be master in solving these problems. Only keep in mind the following:

(1) You must have strong word power.
(2) You must have good understanding & reasoning ability.
(3) You must have good general knowledge.

CLASSIFICATION

When we come to solve the reasoning part while preparing for any competitive examination of objective nature. We find that the problems based on classification are the very important segment. You can see such questions in every question paper and this is the reason why examinees are advised to be well aware of classification part of reasoning. In this chapter, efforts have been made to make, examinees of various objective competitive examinations, fully aware of reasoning based on classification.

WHAT IS CLASSIFICATION?

You must have in your mind that what does classification mean. In fact, in classification we take out an element out of some given elements and the element to be taken out is different from the rest of the elements in terms of common properties, shapes, sizes, types, nature, colours, traits etc. In this way the rest of the elements form a group and the element that has been taken out is not the member of that group as this single element does not possesses the common quality to be possessed by rest of the elements. For example, if we compare the elements like, lion, cow, tiger, panther, bear and wolf then we find that this is a group of animals. How do we classify them? To understand this let us see the presentation given below :-

Lion	Cow	Tiger	Panther	Bear	Wolf
↓	↓	↓	↓	↓	↓
Wild animal	Domestic animal	Wild animal	Wild animal	Wild animal	Wild animal

Here, if we want to separate out one animal then definitely that animal will be cow because cow is the only animal in the group which is a domestic animal. Rest of the animals (Lion, Tiger, Panther, Bear and Wolf) are wild animals. Hence rest of the animals (Lion, Tiger, Panther, Bear & Wolf) form a group of wild animals separating out the domestic animal (Cow).

Similarly, out of 6 letters A, M, N, U, P & Q, we will take out A and form a group of 5 letters M, N, U, P & Q because out of given six letters only A is a vowel while rest of the letters form a group of consonants.

TYPES OF CLASSIFICATION

(1) Letter/meaningless word based classification
(2) Meaningful word based classification
(3) Digit based classification
(4) General knowledge based classification

Now we will discuss these three types of classifications one by one:-

1. Letter/Meaningless Word Based Classification

Such classifications are based on letters of English alphabet. So many groups of letters are given in the question in which one group is different from remaining groups and hence the different group will be our answer.

EXAMPLE 5. Find the odd word out of the following options.

(a) PQT **(b) UVY**
(c) DEH **(d) IJN**
(e) FGJ

Sol. (a) P Q (R S) T — 2 letter gap
(b) U V (W X) Y — 2 letter gap
(c) D E (F G) H — 2 letter gap
(d) I J (K L M) N — 3 letter gap
(e) F G (H I) J — 2 letter gap

As it is clear that except option (d) all the other options have 2 letters gap between 2nd and third letters and the 1st two letters are in consecutive order. While in case of option (d) 1st two letters are in consecutive order but there is 3 letters gap between 2nd and third letter separating it out of the remaining group of the letters. Hence option (d) is the correct option.

EXAMPLE 6. Following are given four options and out of them 3 form a group in terms of some similarity. Find out the option which does not fit into that group.

(a) LMNO – ONML **(b) PQRS – SRQP**
(c) IJKL – LKJI **(d) UVWX – VUXW**
(e) None of these

Sol. (a) $\begin{vmatrix}L\\1\end{vmatrix}\begin{vmatrix}M\\2\end{vmatrix}\begin{vmatrix}N\\3\end{vmatrix}\begin{vmatrix}O\\4\end{vmatrix} \longrightarrow \begin{vmatrix}O\\4\end{vmatrix}\begin{vmatrix}N\\3\end{vmatrix}\begin{vmatrix}M\\2\end{vmatrix}\begin{vmatrix}L\\1\end{vmatrix}$

(b) $\begin{vmatrix}P\\1\end{vmatrix}\begin{vmatrix}Q\\2\end{vmatrix}\begin{vmatrix}R\\3\end{vmatrix}\begin{vmatrix}S\\4\end{vmatrix} \longrightarrow \begin{vmatrix}S\\4\end{vmatrix}\begin{vmatrix}R\\3\end{vmatrix}\begin{vmatrix}Q\\2\end{vmatrix}\begin{vmatrix}P\\1\end{vmatrix}$

(c) $\begin{vmatrix}I\\1\end{vmatrix}\begin{vmatrix}J\\2\end{vmatrix}\begin{vmatrix}K\\3\end{vmatrix}\begin{vmatrix}L\\4\end{vmatrix} \longrightarrow \begin{vmatrix}L\\4\end{vmatrix}\begin{vmatrix}K\\3\end{vmatrix}\begin{vmatrix}J\\2\end{vmatrix}\begin{vmatrix}I\\1\end{vmatrix}$

(d) $\begin{vmatrix}U\\1\end{vmatrix}\begin{vmatrix}V\\2\end{vmatrix}\begin{vmatrix}W\\3\end{vmatrix}\begin{vmatrix}X\\4\end{vmatrix} \longrightarrow \begin{vmatrix}V\\2\end{vmatrix}\begin{vmatrix}U\\1\end{vmatrix}\begin{vmatrix}X\\4\end{vmatrix}\begin{vmatrix}W\\3\end{vmatrix}$

Above presentation makes it clear that (d) does not fit into the groups.

2. Meaningful Words Based Classification

In such type of classification we have to take odd word out of the given group of meaningful words.

EXAMPLE 7. Out of the 5 words given below, four have certain thing common and so they form a group. Find out the word which one is not a part of that group.

(a) Slim **(b) Trims**
(c) Greets **(d) Grid**
(e) Fight

Sol.: Option (c) is the correct option because this is the only option which has two vowels while the other options have only one vowel. Let us see the following presentation:-

(a) Sl (i) m — 1 vowel
(b) Tr (i) ms — 1 vowel
(c) Gr (ee) ts — 2 vowels
(d) Gr (i) d — 1 vowel
(e) F (i) ght — 1 vowel

3. Digit Based Classification

In such type of classifications digits or numbers are given to find out one number that is not a part of the group of remaining numbers.

EXAMPLE 8. Find the odd number out.

(a) 122 **(b) 128** **(c) 199**
(d) 200 **(e) 388**

Sol.: Option (c) is the correct option because this is an odd number while all the other options are even numbers.

EXAMPLE 9. Four of the following numbers have some similarity and hence they form a group. Find out the number which does not suit in the group.

(a) 7842 **(b) 7562** **(c) 7122**
(d) 7722 **(e) 8952**

Sol.: Option (e) is the correct answer as except option (e) all other options start with 7 & end with 2.

4. General Knowledge Based Classification

Such classification is done on the basis of our general knowledge. No doubts that this is a word based classification but without having general knowledge this type of questions can not be solved.

EXAMPLE 10. Find the odd man out.

(a) Patna **(b) Mumbai**
(c) Kolkata **(d) Bangluru**
(e) Madhya Pradesh

Sol.: Option (e) is the correct answer because Madhya Pradesh is an Indian state while all other options are capitals of Indian states. Patna is the capital of Bihar; Mumbai is the capital of Maharashtra; Kolkata is the capital of West Bengal and Bangluru is the capital of Karnataka. In case of Madhya Pradesh (it is an Indian state), we can say that it has its capital in Bhopal.

EXAMPLE 11. Which of the following animals does not fit into the group formed by remaining four animals?

(a) Cat **(b) Dog**
(c) Tiger **(d) Octopus**
(e) Lion

Sol.: Option (d) is the correct option as this is the only animal out of given options which is a water animal. Rest of the options are land animals.

Now, this chapter has come to an end. Readers are advised to move as per the following steps while solving the problems related to classification :-

Step I : See all the given options with a serious eye.
Step II : Try to make relation of similarity among the given options.
Step III : Find out the one word not having the common similarity like other four options and that one word will be your answer.

EXERCISE

1. Which of the following is related to 'Melody' in the same way as 'Delicious' is related to 'Taste'?
   (a) Memory (b) Highness
   (c) Tongue (d) Speak
   (e) Voice
2. In a certain way 'Diploma' is related to 'Education'. Which of the following is related to 'Trophy' in a similar way?
   (a) Sports (b) Athlete
   (c) Winning (d) Prize
   (e) None of these
3. Marathon is related to race, in the same way 'Hibernation' is related to _____
   (a) laugh (b) burn
   (c) freeze (d) sleep
   (e) flow
4. "Illness" is related to "Cure" in the sameway as "Grief" is – related to
   (a) Happiness (b) Ecstasy
   (c) Remedy (d) Solicitude
   (e) Consolation
5. 'Yard' is related to inch, in the sameway 'quart' is related to
   (a) gram (b) ounce
   (c) gallon (d) pound
   (e) None of these
6. 'Bouquet' is related to 'Flowers' in the same way as 'sentence' is related to
   (a) Letters (b) Paragraph
   (c) Content (d) Words
   (e) Construction
7. Which of the following relates to FLOWER in the same way as RTERBN relates to SECTOR?
   (a) RWLGPF (b) EOFKUQ
   (c) EOFMXS (d) RWLEPD
   (e) RWLEND
8. 'Income' is related to 'Profit' in the same way as 'Expenditure' is related to
   (a) Sale (b) Receipts
   (c) Surplus (d) Loss
   (e) Balance
9. 'Electricity' is related to 'Wire' in the same way as 'Water' is related to
   (a) Bottle (b) Jug
   (c) River (d) Pipe
   (e) None of these
10. 'Hospital' is related to 'Nurse' in the same way as 'Court' is related to
    (a) Justice (b) Lawyer
    (c) Judgement (d) Trial
    (e) None of these
11. 'Frame work' is related to 'House' in the same way as 'Skeleton' is related to which of the following?
    (a) Ribs (b) Skull
    (c) Body (d) Grace
    (e) None of these

Directions (Qs. 12-61) : In each of the following questions, there are two words / set of letters / numbers to the left of the sign :: which are connected in some way. The same relationship obtains between the third words / set of letters / numbers and one of the four alternatives under it. Find the correct alternative in each question.

12. Ocean : Water :: Glacier : ?
    (a) Refrigerator (b) Ice
    (c) Mountain (d) Cave
    (e) None of these
13. PRLN : XZTV :: JLFH : ?
    (a) NPRT (b) NRPT
    (c) NTRP (d) RTNP
    (e) None of these
14. DRIVEN : EIDRVN :: BEGUM : ?
    (a) EUBGM (b) MGBEU
    (c) BGMEU (c) UEBGM
    (e) None of these
15. Medicine : Sickness :: Book : ?
    (a) Ignorance (b) Knowledge
    (c) Author (d) Teacher
    (e) None of these
16. Bank : River :: Coast : ?
    (a) Flood (b) Waves
    (c) Sea (d) Beach
    (e) None of these
17. ACE : HIL :: MOQ : ?
    (a) XVT (b) TVX
    (c) VTX (d) TUX
    (e) None of these
18. NUMBER : UNBMER : : GHOST : ?
    (a) HOGST (b) HOGTS
    (c) HGOST (d) HGSOT
    (e) None of these
19. Court : Justice : : School : ?
    (a) Teacher (b) Student
    (c) Ignorance (d) Education
    (e) None of these
20. Breeze : Cyclone : : Drizzle : ?
    (a) Earthquake (b) Storm
    (c) Flood (d) Downpour
    (e) None of these
21. 3 : 27 : : 4 : ?
    (a) 140 (b) 75
    (c) 100 (d) 64
    (e) None of these
22. Foresight : Anticipation :: Insomnia : ?
    (a) Treatment (b) Disease
    (c) Sleeplessness (d) Unrest
    (e) None of these
23. Ocean : Pacific :: Island : ?
    (a) Greenland (b) Ireland
    (c) Netherland (d) Borneo
    (e) None of these

24. 12 : 30 : : 20:?
(a) 25 (b) 32
(c) 35 (d) 42
(e) None of these

25. 3 : 10 :: 8 : ?
(a) 10 (b) 13
(c) 14 (d) 17
(e) None of these

26. 13 : 19 :: ? : 31
(a) 21 (b) 23
(c) 25 (d) 26
(e) None of these

27. 48 : 122 : : 168 : ?
(a) 284 (b) 286
(c) 288 (d) 290
(e) None of these

28. TSR : FED :: WVU ?
(a) CAB (b) MLK
(c) PQS (d) GFH
(e) None of these

29. CJDL : FMGR :: IKJR: ?
(a) OQPT (b) RSTU
(c) LSNT (d) KRMO
(e) None of these

30. BCDA : STUR :: KLMJ : ?
(a) VWXU (b) EFHG
(c) SRTU (d) QSRP
(e) None of these

31. ACBD : EFGH : : OQPR
(a) STUV (b) RSTU
(c) UVWX (d) QRST
(e) None of these

32. CEG : EGC : : LNP : ?
(a) LPN (b) UWY
(c) NPL (d) MOP
(e) None of these

33. KLM : PON : : NOP : ?
(a) LMK (b) MLK
(c) NML (d) KLN
(e) None of these

34. ACE : FGH :: LNP : ?
(a) QRS (b) PQR
(c) QST (d) MOQ
(e) None of these

35. 211 : 333 :: 356 :?
(a) 358 (b) 359
(c) 423 (d) 388
(e) None of these

36. Length : Metre :: Power : ?
(a) Calories (b) Degree
(c) Watt (d) Kilogram
(e) None of these

37. Square : Cube :: Circle : ?
(a) Ellipse (b) Parabola
(c) Cone (d) Sphere
(e) None of these

38. Paper : Tree :: Glass : ?
(a) Window (b) Sand
(c) Stone (d) Mirror
(e) None of these

39. ACFJ : ZXUQ :: EGIN : ?
(a) VUSQ (b) VRPM
(c) UTRP (d) VTRM
(e) None of these

40. ACEG : DFHJ :: QSUW : ?
(a) TVXZ (b) TQST
(c) MNPR (d) EGIJ
(e) None of these

41. EGIK : FILO :: FHJL : ?
(a) JGMP (b) JGPM
(c) GJPM (d) GJMP
(e) None of these

42. 10 : 91 :: 9 : ?
(a) 69 (b) 72
(c) 89 (d) 97
(e) None of these

43. 7 : 56 :: 9 : ?
(a) 63 (b) 81
(c) 90 (d) 99
(e) None of these

44. 20 : 50 :: 100 : ?
(a) 150 (b) 250
(c) 200 (d) 156
(e) None of these

45. Voyage : Sea sickness : : Heights : ?
(a) Ship (b) Travel
(c) Giddiness (d) Motion
(e) None of these

46. Waitress : Restaurant : : ?
(a) Doctor : Nurse (b) Driver : Truck
(c) Teacher : School (d) Actor : Role
(e) None of these

47. AROUND : RAUODN : : GROUND : ?
(a) RGUODN (b) NDOOGR
(c) OUNDGR (d) DNUURG
(e) None of these

48. APPROACHED : ROACHEDAPP : : BARGAINED : ?
(a) AINEDBARG (b) GAINEDBAR
(c) GAINEDRAB (d) RABGAINED
(e) None of these

49. 8 : 256 : : ?
(a) 7 : 343 (b) 9 : 243
(c) 10 : 500 (d) 5 : 75
(e) None of these

50. 21 : 3 : : 574 : ?
(a) 23 (b) 82
(c) 97 (d) 113
(e) None of these

51. Saint : Meditation : : Scientist : ?
(a) Research (b) Knowledge
(c) Spiritual (d) Rational
(e) None of these

52. King : Palace :: Eskimo : ?
(a) Caravan (b) Asylum
(c) Monastery (d) Igloo
(e) None of these

53. AFKP : DINS :: WBGL : ?
(a) ORUX (b) OSWA
(c) OTYD (d) OQSU
(e) None of these

54. SINGER : QGLECP :: MONSTER : ?
(a) KLNSCP (b) KLMSCP
(c) KMLQRCP (d) KLMTDO
(e) None of these

55. 18 : 5 :: 12 : ?
(a) 4 (b) 10
(c) 3 (d) 6
(e) None of these

56. Haematology : Blood : : Phycology : ?
(a) Fungi (b) Fishes
(c) Algae (d) Diseases
(e) None of these

57. Pride of Lions : : _____ of cats
(a) Herd (b) School
(c) Clowder (d) Bunch
(e) None of these

58. MAN : PDQ : : WAN : ?
(a) ZDQ (b) NAW
(c) YQD (d) YDQ
(e) None of these

59. AEFJ : KOPT : : ? : QUVZ
(a) GLKP (b) GKLP
(c) HLKP (d) HKQL
(e) None of these

60. 2 : 32 : : 3 : ?
(a) 243 (b) 293
(c) 183 (d) 143
(e) None of these

61. D × H : 4 × 8 as M × Q: ?
(a) 12 × 17 (b) 12 × 16
(c) 13 × 17 (d) 14 × 18
(e) None of these

Directions (Qs. 62-97): Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?

62. (a) 29 (b) 85
(c) 147 (d) 125
(e) 53

63. (a) Crow (b) Vulture
(c) Bat (d) Ostrich
(e) Eagle

64. (a) Food : Hunger (b) Water : Thirst
(c) Air : Suffocation (d) Talent : Education
(e) Leg : Lame

65. (a) 126 (b) 122
(c) 65 (d) 50
(e) 170

66. (a) 226 (b) 290
(c) 360 (d) 170
(e) 122

67. (a) Rice (b) Wheat
(c) Barley (d) Mustard
(e) Bajra

68. (a) Arrow (b) Sword
(c) Knife (d) Axe
(e) Pistol

69. (a) 169 (b) 179
(c) 135 (d) 149
(e) 157

70. (a) Kiwi (b) Eagle
(c) Emu (d) Ostrich
(e) Penguins

71. (a) 72 (b) 42
(c) 152 (d) 110
(e) 156

72. (a) Aluminium (b) Copper
(c) Mercury (d) Iron
(e) Zinc

73. (a) 143 (b) 63
(c) 195 (d) 15
(e) 257

74. (a) Producer (b) Director
(c) Investor (d) Financer
(e) Entrepreneur

75. (a) Jackal (b) Cheetah
(c) Tiger (d) Lion
(e) Dog

76. (a) Cheese (b) Butter
(c) Milk (d) Curd
(e) Ghee

77. (a) 131 (b) 151
(c) 181 (d) 171
(e) 161

78. (a) Anxiety (b) Anger
(c) Sorrow (d) Joy
(e) Feeling

79. (a) Touch : Skin (b) Tongue : Taste
(c) Hear : Ears (d) See : Eye
(e) Smell : Nose

80. (a) 170 (b) 226
(c) 120 (d) 290
(e) 362

81. (a) BROTHER : DORVEHT
(b) ENGLISH : GGNNSIJ
(c) ANOTHER : CONVEHT
(d) BETWEEN : DTEZEEP
(e) HUSBAND : JSUDNAF

82. (a) ISLOJ (b) LUOQM
(c) AKDGB (d) FPILG
(e) NXQTO

83. (a) Pear (b) Jackfruit
(c) Watermelon (d) Papaya
(e) Mango

84. (a) 131 (b) 133
(c) 143 (d) 87
(e) 57

85. (a) 168 (b) 728
(c) 290 (d) 380
(e) 120

86. (a) Swan (b) Crocodile
(c) Frog (d) Snake
(e) Chicken

87. (a) PY8 (b) EK5
(c) RV3 (d) DG2
(e) JR6

88. (a) Liberty (b) Society
(c) Equality (d) Fraternity
(e) None of these

89. (a) DWFU (b) EVHS
(c) HSKP (d) KQNN
(e) None of these

90. (a) CBEF (b) EDGH
(c) IHKL (d) GFHJ
(e) None of these

91. (a) 4025 (b) 7202
(c) 6023 (d) 5061
(e) None of these

92. (a) 96 : 80 (b) 64 : 48
(c) 80 : 60 (d) 104 : 78
(e) None of these

93. (a) Radio (b) Television
(c) Transistor (d) Tube
(e) None of these

94. (a) Pathology (b) Geology
(c) Cardiology (d) Radiology
(e) None of these

95. (a) Rivulet (b) Stream
(c) River (d) Pond
(e) None of these

96. (a) Konark (b) Madurai
(c) Dilwara (d) Ellora
(e) None of these

97. (a) Fervent (b) Enthusiastic
(c) Apathetic (d) Ardent
(e) None of these

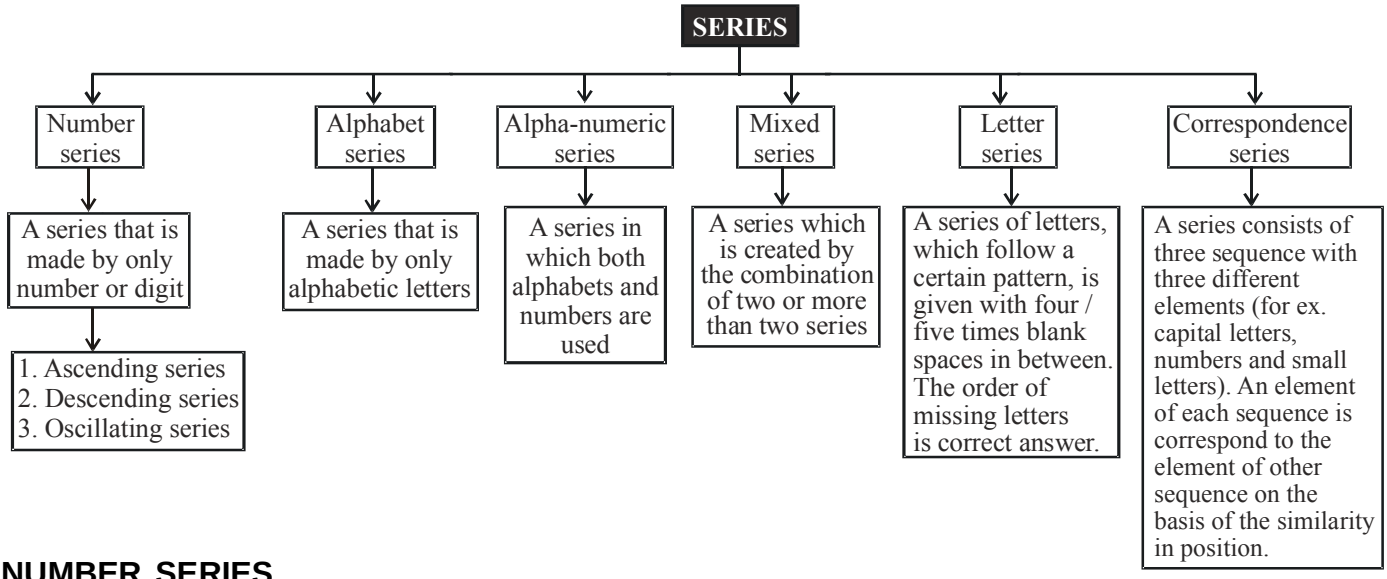
CHAPTER 3

Series

INTRODUCTION

A series is a sequence of numbers/alphabetical letters or both which follow a particular rule. Each element of series is called 'term'. We have to analyse the pattern and find the missing term or next term to continue the pattern.

Types of series are explained in the following chart :



NUMBER SERIES

Number series is a form of numbers in a certain sequence, where some numbers are mistakenly put into the series of numbers and some number is missing in that series, we need to observe first and then find the accurate number to that series of numbers. Different types of Number Series–

1. Perfect square series

This type of serics are based on square of a number which is in same order and one square number is missing in that given series.

E.g. 841, ?, 2401, 3481, 4761

Sol. $29^2, 39^2, 45^2, 59^2, 69^2$

2. Perfect cube series

Perfect cube series is a arrangement of numbers is a certain order, where some number which is in same order and one cube is missing in that given series.

E.g. 4096, 4913, 5832, ?, 8000

Sol. $16^3, 17^3, 18^3, 19^3, 20^3$

3. Mixed number series

Mixed number series is a arrangement of numbers in a certain order. This type of series are more than are different order which arranged in alternatively in single series or created according to any non conventional rule.

E.g 1, 111, 220, 438, ?, 1746.

At first you can calculate missing number in mixed series and that you place the actual missing number in the ? or missing place. Be prepared when you calculate differences because it is either one or two step calculation. So when you calculate and get two difference numbers result you need follow some step wise.

This kind the missing series calculation you go thorough some common calculation shortcut tricks square of division, cube, addition, multiplication.

EXAMPLE **6, ?, 33, 69, 141, 285**

Sol. × 2 + 3, × 2 + 3, × 2 + 3, × 2 + 3, × 2 + 3, × 2 + 3

EXAMPLE **4, 16, 64, 256, 1024, ?**

Sol. Multiply each number by 4 to get the next number.

$4 \times 4 = 16$

$16 \times 4 = 64$

$64 \times 4 = 256$

$256 \times 4 = 1024$

$1024 \times 4 = 4096$

4. Geometric Series

Geometric Number series is a arrangement of numbers in a certain order, where some numbers are this type of series are based on ascending or descending order of numbers and each continues number is obtain by multiplication or division of the previous number with a static number.

In geometric series number is a combination of number arranged.

E.g 5, 45, 405, 3645, ?

At first calculate the first number 5 with 9 and second number value we get that is 45 then again second number calculate multiply with 9 and get the third number and follow same steps which is carry up to last and after that you get actual missing number by finding the common value when you put the missing number you have noticed that all series numbers are common 9 which multiply with number and get next number difference.

EXAMPLE **21, 84, 336, ?, 5376**

Sol. $21 \times 4 = 84$

$84 \times 4 = 336$

$336 \times 4 = 1344$

$1344 \times 4 = 5376$

5 Prime series :

In which the terms are the prime numbers in order

EXAMPLE **2, 3, 5, 7, 11, 13, __ , 19**

Sol. Here the terms of the series are the prime numbers in order. The prime number after 13 is 17. So the answer to this question is 17.

6 Alternate Primes :

It can be explained by below examples

EXAMPLE **2, 11, 17, 13, __, 41**

Sol. Here the series is framed by taking the alternative prime numbers. After 23, the prime number are 29 and 31. So the answer is 31.

7 The difference of any term from its succeding term is constant (either increasing series or decreasing series):

EXAMPLE **4, 7, 10, 13, 16, 19, __, 25**

Sol. Here the differnce of any term from its succeding term is 3.

$7 - 4 = 3$

$10 - 7 = 3$

so, the answer is $19 + 3 = 22$

8 The difference between two consecutive terms will be either increasing or decreasing by a constant number:

EXAMPLE **2, 10, 26, 50, 82, __**

Sol. Here, the difference between two consecutive terms are

$10 - 2 = 8$

$26 - 10 = 16$

$50 - 26 = 24$

$82 - 50 = 32$

Here, the difference is increased by 8 (or you can say the multiples of 8). So the next difference will be 40 (32 + 8). So, the answer is $82 + 40 = 122$

9 The difference between two numbers can be multiplied by a constant number:

EXAMPLE **15, 16, 19, 28, 55, __**

Sol. Here, the differences between two numbers are

$16 - 15 = 1$

$19 - 16 = 3$

$28 - 19 = 9$

$55 - 28 = 27$

Here, the difference is multiplied by 3. So, the next difference will be 81. So, the answer is $55 + 81 = 136$

10 The difference can be multiples by number which will be increasing by a constant number:

EXAMPLE **2, 3, 5, 11, 35, __**

Sol. The difference between two number are

$3 - 2 = 1$

$5 - 3 = 2$

$11 - 5 = 6$

$35 - 11 = 24$

11 Every third number can be the sum of the preceding two numbers :

EXAMPLE **3, 5, 8, 13, 21, __**

Sol. Here starting from third number

$3 + 5 = 8$

$5 + 8 = 13$

$8 + 13 = 21$

So, the answer is $13 + 21 = 34$

12 Every Third number can be the product of the preceeding two numbers :

EXAMPLE **1, 2, 2, 4, 8, 32. __**

Sol. Here starting from the third number

$1 \times 2 = 2$

$2 \times 2 = 4$

$2 \times 4 = 8$

$4 \times 8 = 32$

So, the answer is $8 \times 32 = 256$

13 Every succeeding term is got by multiplying the previous term by a constant number or numbers which follow a special pattern.

EXAMPLE **5, 15, 45, 135, __**

Sol. Here,

$5 \times 3 = 15$

$15 \times 3 = 45$

$45 \times 3 = 135$

So, the answer is $135 \times 3 = 405$

14 In certain series the terms are formed by various rule (miscellaneous rules). By keen observation you have to find out the rule and the appropriate answer.

EXAMPLE **4, 11, 31, 90, __**

Sol. Terms are,

$4 \times 3 - 1 = 11$

$11 \times 3 - 2 = 31$

$31 \times 3 - 3 = 90$

So, the answer will be $90 \times 3 - 4 = 266$

TYPES OF QUESTIONS :

(I) Complete the series

(II) Find missing number of the series

(III) Find wrong number of the series

EXAMPLES ON NUMBER SERIES

(I) Complete the series

EXAMPLE **1. Which of the following is the next term of series given below ?**

4, 6, 9, 13, ...

(a) 17 (b) 18

(c) 19 (d) 20

Sol. (b) 4 6 9 13 [18] Correct answer

+2 +3 +4 +5

EXAMPLE **2. Choose the next term of series given below.**

64, 32, 16, 8, ?

(a) 0 (b) 1

(c) 2 (d) 4

Sol. (d) Each number is half of its previous number.

(II) To find the missing number of series :

EXAMPLE **3. What will come in place of question mark in the following series?**

79, 87, ? , 89, 83

(a) 80, (b) 81 (c) 82 (d) 88

Sol. (b) 79 87 [81] 89 83

+8 −6 +8 −6

EXAMPLE **4. What will come in place of question mark in the following series?**

37, 41, ? , 47, 53

(a) 42 (b) 43 (c) 46 (d) 44

Sol. (b) Consecutive prime numbers.

EXAMPLE **5. What will come in place of question mark in the following series?**

21, 34, ? , 89, 144

(a) 43 (b) 55 (c) 64 (d) 71

Sol. (b) Each number is the sum of the two preceding numbers.

$21 + 34 = 55$

$34 + 55 = 89$

$55 + 89 = 144$

(III) To find the wrong term in the series :

EXAMPLE **6. Find the wrong term in the series**

3, 8, 15, 24, 34, 48, 63.

(a) 15 (b) 15 (c) 34 (d) 63

Sol. (c) $2^2 - 1, 3^2 - 1, 4^2 - 1, 5^2 - 1, 6^2 - 1$

EXAMPLES ON ALPHABETIC SERIES

EXAMPLE **7. What will come in place of question mark in the following series?**

G, H, J, M, ?

(a) R (b) S (c) Q (d) P

Sol. (c) G H J M [Q]

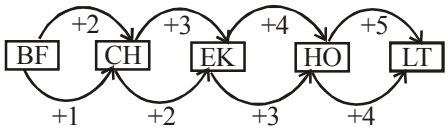
+1 +2 +3 +4

EXAMPLE **8. What will come in place of question mark in the following series?**

BF, CH, ? , HO, LT

(a) FG (b) EK (c) CE (d) FJ

Sol. (b)



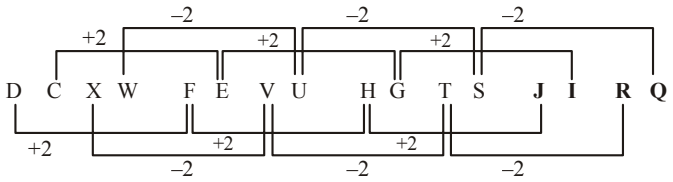
EXAMPLE **9. What will come in place of question mark in the following series?**

DCXW, FEVU, HGTS, ?

(a) LKPO (b) ABYZ

(c) JIRQ (d) LMRS

Sol. (c) JIRQ



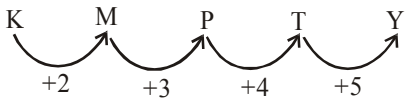
EXAMPLES ON ALPHA-NUMERIC SERIES

EXAMPLE **10. What will come in place of question mark in the following series?**

K 1, M 3, P 5, T 7, ?

(a) Y 9 (b) Y 11 (c) V 9 (d) V 11

Sol. (a) Alphabets follow the sequence



And numbers are increasing by 2

EXAMPLE **11. What will come in place of question mark in the following series?**

2 Z 5, 7 Y 7, 14 X 9, 23 W 11, 34 V 13, ?

Sol. First number is the sum of the number of the preceeding term.

Middle letter is moving one step backward.

Third number in a term is a series of odd numbers.

$\therefore$ 6^{th} term = 47 U 15.

EXAMPLES ON MIXED SERIES

EXAMPLE **12. Complete the series**

Z, L, X, J, V, H, T, F, __, __

(a) D, R (b) R, D (c) D, D (d) R, R

Sol. (b) The given sequence consists of two series

(i) Z, X, V, T, __

(ii) L, J, H, F, __. Both consisting of alternate letters in the reverse order.

$\therefore$ Next term of (i) series = R, and

Next term of (ii) series = D

EXAMPLE **13. What will come in place of question mark in the following series?**

7, 5, 26, 17, 63, 37, 124, 65, ?, ?

(a) 101, 215 (b) 101, 101

(c) 215, 101 (d) 215, 215

Sol. (c) The given series consists of two series

(i) 7, 26, 63, 124 .....

(ii) 5, 17, 37, 65 .....

In the first series,

$7 = 2^3 - 1$, $26 = 3^3 - 1$, $63 = 4^3 - 1$,

$124 = 5^3 - 1$, $\therefore 6^3 - 1 = 215$

and in the second series.

$5 = 2^2 + 1$, $17 = 4^2 + 1$,

$37 = 6^2 + 1$, $65 = 8^2 + 1$,

$\therefore$ $10^2 + 1 = 101$

EXAMPLES ON LETTER SERIES

EXAMPLE **14. Which sequence of letters when placed at the blanks one after another will complete the given letter series?**

b a a b – a b a – b b a – –

(a) bbaa (b) aaaa (c) abab (d) baba

Sol. (d) b a a b b a / b a a b b a / b a.

☞ Shortcut Approach

(i) If numbers are in ascending order in the number series.

- Numbers may be **added or multiplied** by certain numbers from the first number.

Step 1 : Check whether it is ascending , descending or mixed order.

19	23	26	30	33	?
19	23	26	30	33	37
	×4	×3	×4	×3	×4

Step 2: It is in ascending order. So add or multiply by certain numbers from the first number.

Step 3: The difference between first number and second, and difference between second and third and so on., are in increasing order of +4 and +3

Step 4: Hence the answer for above series is 37.

1	3	12	60	?
1	3	12	60	360
	×3	×4	×5	×6

Step 1: Check whether it is ascending , descending or mixed order.

Step 2: It is in ascending order. So add or multiply by certain numbers from the first number.

Step 3: By adding first number and second, and second and third and so on., it is not in the sequence of increasing order. Try multiplication

Step 4: Take 1 and 3, let¡¦s start multiplying 1*3=3, by seeing this we get to know, by multiplying 3*4 it gives 12, and 12*5=60.

Step 4: Hence the answer for above series is 360.

If numbers are in descending order in the number series,

- Numbers may be **subtracted or divided** by certain numbers from the first number.

Step 1: Find whether the given number is in **descending order**.

34 18 10 6 4 ?
34 18 10 6 4 3

Step 2 : It is in **descending** order . So subtract or divide by certain numbers from the first number.

Step 3: The difference between first number and second, and difference between second and third and so on, are in order of -16, –8, –4, –2

Step 4: Hence the answer for above series is 3.

720 120 24 6 2 1 ?
720 120 24 6 2 1

Step 1: Check whether it is ascending , descending or mixed order.

Step 2: It is in descending order. So subtract or divide by certain numbers from the first number.

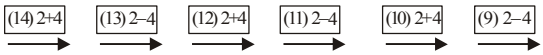
Step 3: By dividing first number by 6 it gives 120.
Divide 120/ 5 =24, 24/4=6, 6/3=2, 2/2=1 .It is in decreasing order.

Step 4: Hence the answer for above series is 1.

If numbers are in mixing order (increasing and decreasing) in the number series.

- Numbers may be in **addition, subtraction**, **multiplication** and **division** in the alternate numbers.

200 165 148 117 104 ?
200 165 148 117 104 77



Step 1: Check whether it is ascending , descending or mixed order.

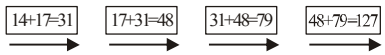
Step 2: It is in mixing order. So it may be in addition, subtraction, division and multiplication, squares and cubes.

Step 3: In above series it is mixing of square, addition and subtraction.

(14)2 = 196 + 4 = 200
(13)2 = 169. By adding 4 it gives 173. Try subtraction.
169 – 4 = 165
Here we found it is in order of squaring a number, adding by 4 and subtracting by 4.

Step 4: Hence the answer for above series is 77.

14 17 31 48 ? 127
14 17 31 48 79 127



Step 1: Check whether it is ascending , descending or mixed order.

Step 2: It is in ascending order. So add or multiply by certain numbers from the first number.

Step 3 : In above series lets add first number with 3 i.e 14 + 3 = 17
But with second number we can't able to add +3 and so on.
Let's try adding first number and second number i.e. 14 + 17 = 31
Second and third, i.e. 17 + 31 = 48 and so on
This series is in the form of **miscellaneous**

Step 4: Hence the answer for above series is 79

EXERCISE

Directions (Qs. 1-15): In each of these questions a number series is given. Only one number is wrong in each series. You have to find out the wrong number.

1. 10 15 24 35 54 75 100
   (a) 35 (b) 75
   (c) 24 (d) 15
   (e) 54
2. 1 3 4 7 11 18 27 47
   (a) 4 (b) 11
   (c) 18 (d) 7
   (e) 27
3. 3 2 3 6 12 37.5 115.5
   (a) 37.5 (b) 3
   (c) 6 (d) 2
   (e) 12
4. 2 8 32 148 765 4626 32431
   (a) 765 (b) 148
   (c) 8 (d) 32
   (e) 4626
5. 2 3 11 38 102 229 443
   (a) 11 (b) 229
   (c) 120 (d) 38
   (e) 3
6. 2807, 1400, 697, 347, 171, 84, 41, 20
   (a) 697 (b) 347
   (c) 371 (d) 84
   (e) 41
7. 108 54 36 18 9 6 4
   (a) 54 (b) 36
   (c) 18 (d) 9
   (e) 6
8. 2 3 5 8 14 23 41 69
   (a) 5 (b) 8
   (c) 14 (d) 41
   (e) 69
9. 0 1 9 36 99 225 441
   (a) 9 (b) 36
   (c) 99 (d) 225
   (e) 441
10. 3 7.5 15 37.5 75 167.5 375
    (a) 167.5 (b) 75
    (c) 37.5 (d) 15
    (e) 7.5
11. 2 3 6 15 45 156.5 630
    (a) 3 (b) 45
    (c) 15 (d) 6
    (e) 156.5
12. 36 20 12 8 6 5.5 4.5
    (a) 5.5 (b) 6
    (c) 12 (d) 20
    (e) 8
13. 1 3 9 31 128 651 3913
    (a) 651 (b) 128
    (c) 31 (d) 9
    (e) 3
14. 1, 30, 136, 417, 836, 829
    (a) 136 (b) 417
    (c) 836 (d) 829
    (e) 30
15. 5 8 16 26 50 98 194
    (a) 8 (b) 26
    (c) 50 (d) 16
    (e) 98
16. 1 2 4.5 11 30 92.5 329
    (a) 92.5 (b) 4.5
    (c) 11 (d) 2
    (e) 30
17. 2 5 7 12 19 32 50
    (a) 7 (b) 12
    (c) 32 (d) 19
    (e) 5
18. 2 13 65 271 817 1639 1645
    (a) 13 (b) 65
    (c) 271 (d) 817
    (e) 1639
19. 3 4 16 75 366 1945 11886
    (a) 16 (b) 75
    (c) 366 (d) 1945
    (e) 4
20. 2 14 91 546 3002 15015
    (a) 15015 (b) 91
    (c) 14 (d) 3002
    (e) 546

Directions (Qs. 21-25): In each of the following questions, a number series is given in which one number is wrong. You have to find out that number and have to follow the new series which will be started by that number. By following this, which will be the second number of the new series?

21. 1 2 6 33 148 765 4626
    (a) 46 (b) 124
    (c) 18 (d) 82
    (e) None of these
22. 2 9 5 36 125 648 3861
    (a) 12 (b) 11
    (c) 75 (d) 72
    (e) None of these
23. 3 4 12 45 190 1005 6066
    (a) 98 (b) 96
    (c) 384 (d) 386
    (e) None of these
24. 11 18 39 97.5 295.5 1037.5
    (a) 122 (b) 122.5
    (c) 123 (d) 124
    (e) None of these

25. 2 7 19 43 99 209 431
(a) 181 (b) 183
(c) 87 (d) 85
(e) None of these

26. 1 2 8 21 88 445
(a) 24.5 (b) 25
(c) 25.5 (d) 25
(e) None of these

27. 6 7 18 63 265 1365
(a) 530 (b) 534
(c) 526 (d) 562
(e) None of these

28. 7 23 58 127 269 555
(a) 263 (b) 261
(c) 299 (d) 286
(e) None of these

29. 5 4 9 18 66 195
(a) 12 (b) 25
(c) 20 (d) 18
(e) None of these

30. 2 7 28 146 877 6140
(a) 242 (b) 246
(c) 252 (d) 341
(e) None of these

Directions (Qs. 31-35): What will come in the place of question mark (?) in the following number.

31. 2 11 38 197 ? 1170 8227 65806 ?
(a) 1170 (b) 1172
(c) 1174 (d) 1178
(e) 1180

32. 16 ? 21 30 46 71 107
(a) 17 (b) 19
(c) 21 (d) 23
(e) 25

33. 7 9 16 25 41 ? 107 173
(a) 74 (b) 70
(c) 68 (d) 66
(e) 72

34. 42 ? 7.5 26.25 118.125
(a) 5 (b) 4
(c) 3.5 (d) 3
(e) 4.5

35. 16 4 2 1.5 ? 1.875
(a) 1.875 (b) 1.5
(c) 1.75 (d) 2
(e) 3

36. 0, 7, 26, 63, ?
(a) 125 (b) 126
(c) 217 (d) 124
(e) None of these

37. 2, 5, 10, 19, 36, ?
(a) 70 (b) 71
(c) 68 (d) 69
(e) None of these

38. 1, 2, 6, 24, ? ,720
(a) 3 (b) 5
(c) 120 (d) 8
(e) None of these

39. 156, 506, ?, 1806
(a) 1056 (b) 856
(c) 1456 (d) 1506
(e) None of these

40. –1, 0, ?, 8, 15, 24
(a) 4 (b) 3
(c) 2 (d) 1
(e) None of these

41. BCFG, JKNO, RSVW, ?
(a) ZADE (b) HIKL
(c) STUX (d) MNPQ
(e) None of these

42. 251 (12) 107
381 (?) 125
(a) 14 (b) 24
(c) 11 (d) 16
(e) None of these

43. 2, 3, 6, 7, 14, 15, ?
(a) 16 (b) 30
(c) 31 (d) 32
(e) None of these

44. 3120, ? , 122, 23, 4
(a) 488 (b) 621
(c) 610 (d) 732
(e) None of these

45. 0, 5, 60, 615,?
(a) 6030 (b) 6170
(c) 6130 (d) 6000
(e) None of these

Directions (Qs. 38-42) : In each of the following questions a number series is given. A number is given after the series and then (a), (b), (c), (d) and (e) are given. According to the given series, you have to form a new series which begins with the given number, and then answer the question asked.

46. 6 3.0 4.5 2.25
40 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (c)?
(a) 20.5 (b) 21.5
(c) 33.75 (d) 69.5
(e) 15

47. 5 9 26 90
13 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (e)?
(a) 2880 (b) 2292
(c) 1716 (d) 3432
(e) None of these

48. 4 9 25 103
3 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (c)?
(a) 391 (b) 81
(c) 91 (d) 79
(e) None of these

49. 6 10 32 126
2 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (a)?
(a) 4 (b) 6
(c) 2 (d) 3
(e) None of these

50. 1260 628 312 154
788 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (d)?
(a) 194 (b) 45.5
(c) 48 (d) 72.5
(e) None of these

51. 5 6 16 57 244 1245
2 (a) (b) (c) (d) (e)
What will come in place of (d)?
(a) 46 (b) 39
(c) 156 (d) 173
(e) None of these

52. 3 5 9 17 33 65
7 (a) (b) (c) (d) (e)
What will come in place of (d)?
(a) 95 (b) 51
(c) 99 (d) 49
(e) None of these

53. 7 4 5 9 20 52.5
3 (a) (b) (c) (d) (e)
What will come in place of (c)?
(a) 4.5 (b) 2
(c) 6 (d) 7
(e) None of these

54. 3 10 32 111 460 2315
2 (a) (b) (c) (d) (e)
What will come in place of (b)?
(a) 29 (b) 30
(c) 26 (d) 28
(e) None of these

55. 5 8 6 10 7 12
7 (a) (b) (c) (d) (e)
What will come in place of (c)?
(a) 14 (b) 16
(c) 9 (d) 11
(e) None of these

56. 3 12 30 66 138 282
7 (a) (b) (c) (d) (e)
What will come in place of (b)?
(a) 34 (b) 70
(c) 46 (d) 62
(e) None of these

57. 2 3 10 39 172 885
5 (a) (b) (c) (d) (e)
What will come in place of (d)?
(a) 244 (b) 175
(c) 208 (d) 196
(e) None of these

58. 3 5 22 13.5 35 19
1 (a) (b) (c) (d) (e)
What will come in place of (a)?
(a) 3 (b) 2
(c) 5 (d) 4
(e) None of these

59. 2 3 7 25 121 721
3 (a) (b) (c) (d) (e)
What will come in place of (c)?
(a) 31 (b) 49
(c) 45 (d) 39
(e) None of these

60. 10 11 15 24 40
6 (a) (b) (c) (d) (e)
What will come in place of (c)?
(a) 14 (b) 13
(c) 12 (d) 10
(e) None of these

61. 13 14 5 18 0.5 19
(a) (b) (c) (d) (e)
What would come in place of (e) ?
(a) 13.75 (b) 27
(c) 18.75 (d) 6.75
(e) None of these

62. 17 21.5 30.5 44 62
21 (a) (b) (c) (d) (e)
What would come in place of (e)'?
(a) 84.5 (b) 88.5
(c) 86 (d) 88
(e) None of these

63. 1 8 10 35 136
2 (a) (b) (c) (d) (e)
What would come in place of (c)'?
(a) 40 (b) 42
(c) 51 (d) 49
(e) None of these

64. 12 26 11 36 9
7 (a) (b) (c) (d) (e)
What would come in place of (c)?
(a) 7 (b) 21
(b) 4 (d) 11
(e) None of these

65. 2 3 6 15 45
16 (a) (b) (c) (d) (e)
What would come in place of (d)?
(a) 360 (b) 120
(c) 300 (d) 240
(e) None of these

66. 9 19.5 41 84.5
12 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (c)?
(a) 111.5 (b) 118.5
(c) 108.25 (d) 106.75
(e) None of these

67. 4 5 22 201
7 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (d)?
(a) 4948 (b) 4840
(c) 4048 (d) 4984
(e) None of these

68. 5 5.25 11.5 36.75
3 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (c)?
(a) 34.75 (b) 24.75
(c) 24.5 (d) 34.5
(e) None of these

69. 38 19 28.5 71.25
18 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (d)?
(a) 118.75 (b) 118.25
(c) 108.25 (d) 118.125
(e) None of these

70. 25 146 65 114
39 (a) (b) (c) (d) (e)
Which of the following numbers will come in place of (e)?
(a) 122 (b) 119
(c) 112 (d) 94
(e) None of these

Directions (Qs. 71-75) : In each of the following questions a number series is given. A number in the series is suppressed by letter 'A'. You have to find out the number in the place of 'A' and use this number to find out the value in the place of the question mark in the equation following the series.

71. 36 216 64.8 388.8 A 699.84 209.952
$A \div 36 = ?$
(a) 61.39 (b) 0.324
(c) 3.24 (d) 6.139
(e) 32.4

72. 42 62 92 132 A 242 312
$A + 14 = ? \times 14$
(a) $11\frac{6}{7}$ (b) 14
(c) $12\frac{5}{7}$ (d) $12\frac{1}{2}$
(e) $12\frac{1}{6}$

73. 4 7 12 19 28 A 52
$A^2 - 4 = ?$
(a) 1365 (b) 1353
(c) 1505 (d) 1435
(e) 1517

74. 18 24 A 51 72 98 129
$A \times \frac{3}{7} \times \frac{4}{5} = ?$
(a) 12 (b) $11\frac{23}{35}$
(c) $12\frac{12}{35}$ (d) $14\frac{2}{5}$
(e) $10\frac{2}{7}$

75. $\frac{3}{8}$ $\frac{3}{4}$ $\frac{9}{16}$ $\frac{9}{8}$ $\frac{27}{32}$ $\frac{27}{16}$ A
$\sqrt{A} = ?$
(a) $\frac{2}{3}$ (b) $\frac{6}{8}$
(c) $\frac{6}{4}$ (d) $\frac{3}{4}$
(e) $\frac{9}{8}$

Directions (Qs. 76-85) : Complete the given series.

76. BYCXW, CXDWV, EVFUT, GTHSR, ?
(a) IRJQP (b) KPOLN
(c) KPLON (d) JOKPO
(e) None of these

77. FOX, GP?, HQZ
(a) Y (b) Z
(c) T (d) W
(e) None of these

78. QPO, SRQ, UTS, WVU, (?)
(a) XVZ (b) YXW
(c) ZYA (d) VWX
(e) None of these

79. YEB, WFD, UHG, SKI, (?)
(a) QOL (b) TOL
(c) QGL (d) QNL
(e) None of these

80. AZ, CX, FU, (?)
(a) IR (b) JQ
(c) IV (d) KP
(e) None of these

81. ABD, DGK, HMS, MTB, SBL, ?
(a) ZAB (b) XKW
(c) ZKU (d) ZKW
(e) None of these

82. OTE, PUF, QVG, RWH, ?
(a) SYJ (b) TXI
(c) SXJ (d) SXI
(e) None of these

83. BEH, KNQ, TWZ, ?
(a) IJL (b) CFI
(c) BDF (d) ADG
(e) None of these

84. MHZ, NIW, OKT, PNQ,?
(a) RRN (b) QRN
(c) QRM (d) QQN
(e) None of these

85. A, CD, GHI, ?, UVWXY
(a) LMNO (b) MNO
(c) NOPQ (d) MNOP
(e) None of these

Directions (Qs. 86-95): Which sequence of letters when placed at the blanks one after another will complete the given letter series?

86. ba _ b _ aab _ a _ b
(a) abaa (b) abba
(c) baab (d) babb
(e) None of these

87. c _ bba _ cab _ ac _ ab _ ac
(a) abcbc (b) acbcb
(c) babcc (d) bcacb
(e) None of these

88. abca _ bcaab _ ca _ bbc _ a
(a) ccaa (b) bbaa
(c) abac (d) abba
(e) None of these

89. b _ b _ bb _ bbb _ bb _ b
(a) bbbbba (b) bbaabb
(c) ababab (d) aabaab
(e) None of these

90. aa – bb – aa – abbbb – a
(a) bbaa (b) aabb
(c) baba (d) abab
(e) None of these

91. – aba – cabc – dcba – bab – a
(a) abdca (b) bcadc
(c) abcdd (d) cbdaa
(e) None of these

92. ba _ b _ aab _ a _ b
(a) abaa (b) abba
(c) baab (d) babb
(e) None of these

93. c _ bba _ cab _ ac _ ab _ ac
(a) abcbc (b) acbcb
(c) babcc (d) bcacb
(e) None of these

94. aab – cc – daa – bbb – ccddd
(a) bdbd (b) ddca
(c) dbbc (d) bdac
(e) None of these

95. adb_ac_da_cddcb_dbc_cbda
(a) bccba (b) cbbaa
(c) ccbba (d) bbcad
(e) None of these

CHAPTER 4

Coding-Decoding

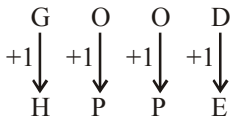
In this segment of commonsense reasoning, secret messages or words have to be decoded. They are coded as per a definite pattern/ rule which should be identified 1st. Then the same is applied to decode another coded word. Under this segment you come across types of coding letter coding and number coding. Based on these two types of coding-decoding various types of problems come in your way. This chapter makes you familiar with every types of problems based on coding-decoding.

TYPE I (CODING BY LETTER SHIFTING)

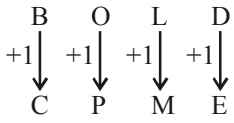
Pattern 1: Coding in forward sequence

EXAMPLE 1. If 'GOOD' is coded as 'HPPE', then how will you code 'BOLD'?

Explanation: Here,every letter of the word 'GOOD' shifts one place in forward alphabetical sequence.



Similarly, every letter in the word 'BOLD' will move one place in forward alphabetical sequence as given below:

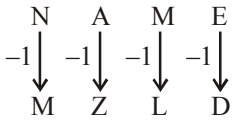


∴ Code for 'BOLD' will be 'CPME'.

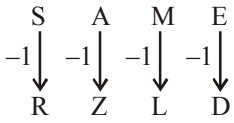
Pattern 2: Coding in backward sequence.

EXAMPLE 2. If 'NAME' is coded as 'MZLD', then how will code SAME?

Explanation: Here, every letter of the word 'MZLD' moves one place in backward alphabet sequence. Let us see:



Similarly, every letter of the word 'SAME' will move one place in backward alphabet sequence. Let us see :

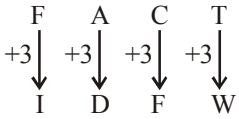


∴ Code for 'SAME' will be 'RZLD'.

Pattern 3: Coding based on skipped sequence.

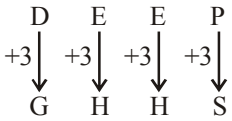
EXAMPLE 3. If the word 'FACT' is coded as 'IDFW'; then how will you code 'DEEP'?

Explanation: Here, you see that 2 letters are omitted in alphabetic sequence. The following diagram gives you the more clear picture :



Clearly, 'F' (skip 2 letters) 'I'
'A' (skip 2 letters) 'D'
'C' (skip 2 letters) 'F'
'T' (skip 2 letters) 'W'

Similarly, 'DEEP' can be coded. Let us see :



∴ Code for 'DEEP' will be 'GHHS'.

TYPE II (CODING BY ANALOGY)

EXAMPLE 4. If 'RPTFA' stands for 'BLADE', how will you code 'BALE'.

Explanation: Here, 'BLADE' has been coded as 'RPTFA'. You will see that all the letters in the word 'BALE', which have to be coded, are also there in the word 'BLADE'. Hence, all that needs to be done is to choose the relevant code letters from the code word 'RPTFA'. Therefore, B becomes R, A becomes T, L becomes P, and E becomes A. Therefore, 'BALE' will be coded as 'RTPA'.

∴ Correct answer is 'RPTA'.

EXAMPLE 5. If 'cages' are called 'rockets'. rockets are called traps, 'traps' are called 'planets' 'planets' are called 'airoplanes', 'airoplanes' are called 'cycles' are cycles' are called 'cars', what is Earth

(a) cycles (b) rockets
(c) planet (d) airoplanes
(e) cars

Explanation: (d) Earth is a planet and here planets are called airplanes. So earth will be called airplanes.

TYPE III (CODING BY REVERSING LETTERS)

EXAMPLE 6. If 'TEMPERATURE' is coded as 'ERUTAREPMET', then how will you code 'EDUCATION' following the same scheme.

Explanation: Here, the word 'TEMPERATURE' has been reversed. Hence, the code for 'education' will be 'NOITACUDE'.

TYPE IV (CODING IN FICTION LANGUAGE)

In some cases of coding-decoding, fictions language is used to code some words. In such questions, the codes for a group of words is given. In such types of problems, codes for each word can be found by eliminating the common words.

EXAMPLE 7. In a certain code language 'over and above' is written as 'da pa ta' and 'old and beautiful' is written as 'Sa na pa'. How is 'over' written in that code language?

Explanation: Over (and) above = da (Pa) ta

Old (and) beautiful = Sa na (Pa)

Clearly, 'and' is common in both and a common code is 'Pa'.

∴ Code for 'and' must be 'Pa'.

Code for 'over' = 'da' or 'ta'.

Code for above = 'da' or 'ta'.

Code for old = 'Sa' or 'na'

Code for beautiful = 'Sa' or 'na'

∴ We can't certainly say what will be exact code for 'over'. But it is sure that code for 'over' must be either 'da' or 'ta'.

TYPE V (CODING BASED ON NUMBERS)

Pattern 1: When numerical values are given to words.

EXAMPLE 8. If in a certain language A is coded as 1, B is coded as 2. C is coded as 3 and so on, then find the code for AEECD.

Explanation: As given the letters are coded as below:

A	B	C	D	E	F	G	H	I
1	2	3	4	5	6	7	8	9

Now,

A	E	E	C	D
1	5	5	3	4

∴ Code for AEECD = 15534

Pattern 2: When alphabetical code value are given for numbers.

EXAMPLE 9. In a certain code 3 is coded as 'R', 4 is coded as 'D', 5 is coded as 'N', 6 is coded as 'P', then find the code for '53446'.

Explanation: As per the given condition

3	4	5	6
R	D	N	P

Now,

5	3	4	4	6
N	R	D	D	P

∴ Code for 53446 = NRDDP.

TYPE VI (MATHEMATICAL OPERATIONS WITH THE POSITION NUMBERS OF LETTERS)

Example: In a certain code, if 'TALE' is written as 38, then how will you code 'CAME' using the same coding scheme?

Explanation : Look at the numbered alphabet and write down the number corresponding to the letters of the word 'TALE'.

T	A	L	E
20	1	12	5

The fact that the code for 'TALE' is 38, gives you a clue that the code is probably obtained by performing an arithmatical operations of the numbers of each other. Let us see :

20 + 1 + 12 + 5 = 38

Thus, the code for 'CAME' is

C	A	M	E
3	+ 1	+ 13	+ 5 = 22

∴ Code for 'CAME' = 22

TYPE VII : CODING LETTER OF WORD

Directions: *These questions are based on code language which utilizes letters in the English alphabet. In each question, there is a word written in capital letter, with one letter underlined. For each letter in that word there is a code written in small letters. That code is denoted by (a), (b), (c), (d) and (e) not in the same order. You have to find out the exact code for the underlined letter in the word. The number of that code is the answer. Please note that the same letter appearing in other word(s) may be coded differently.*

1. Q U I T E
   (a) hj (b) su
   (c) tv (d) pr
   (e) df
2. P R I S M
   (a) R (b) O
   (c) H (d) Q
   (e) I
3. B E A S T
   (a) c (b) w
   (c) d (d) h
   (e) v

Solution:

1. (d) is the correct answer.
   Explanation Each single letter is expressed as two letters, one behind and the other ahead of the given letter. Therefore, A becomes zb, B comes ac and so on.
2. (d) is the correct answer.
   Explanation All the letters of the word are coded as one letter behind.
3. (b) is the correct answer.
   Explanation All the letters of the word are coded as three letters ahead.

Now, you must have been aware of the various kind of coding-decoding patterns. Point to be noted that the patterns discussed under this chapter are commonly known pattern/ basic patterns. So, if you practice hard, you find that after some times you become competent enough to solve coding-decoding problems even if certain changes are made in such problems to surprise or puzzle you.

EXERCISE

1. In a certain code language BEAM is written as 5 % * K and COME is written as $ 7 K %. How is BOMB written in that code?
   (a) 5 % K5 (b) 5 7 K5
   (c) $ 7 K $ (d) 5$ % 5
   (e) None of these
2. In a certain code PATHOLOGIST is written as PIUBQKSRHFN. How is CONTROVERSY written in that code?
   (a) SUOPDNXRQDU (b) SUOPDNZTSFW
   (c) QSMNBPXRQDU (d) QSMNBPZTSFW
   (e) None of these
3. In a certain code language NATIONALISM is written as OINTANMSAIL. How is DEPARTMENTS written in that code?
   (a) RADEPTSTMNE (b) RADPETSTMNE
   (c) RADPESTMTNE (d) RADPETSTNME
   (e) None of these
4. In a certain code language OUTCOME is written as OQWWEQOE. How is REFRACT written in that code?
   (a) RTGITCET (b) RTGTICET
   (c) RTGITECT (d) RTGICTET
   (e) None of these
5. If the sentence "you must go early to catch the train" is coded as "early catch train must to go the you", what will be code for the sentence "morning exercise will help you to keep fit"?
   (a) help to fit you exercise will keep morning
   (b) help to fit exercise you will keep morning
   (c) will help to fit you exercise keep morning
   (d) will fit to exercise you help keep morning
   (e) None of these
6. If NOR is coded as 2-3-6, then how should REST be coded in the same code language ?
   (a) 6-19-6-7 (b) 5-19-5-8
   (c) 6-19-5-6 (d) 6-18-5-8
   (e) 8-6-9-19
7. If 'α δ γ η ε' is coded as 'ARGUE' and σφλπε is SOLVE, What is παγηελω is ?
   (a) VAGUELY (b) VAGRANT
   (c) VAGUELE (d) VAGUER
   (e) None of these

Directons (Qs. 8-17): In a certain code, letters of English alphabet (consonants and vowels) are coded as given for some a words. The numeric code for each letter is given in bracket under coded form and corresponds to the letter in the word in the same serial order. Study the coded forms of the given words and find out the rules for their codification. Applying those rules, answer the questions that follow in the two sets.

Word		Coded Form
SEAT	:	[5] [15] [15] [5]
CUT	:	[5] [10] [5]
ONE	:	[0] [5] [0]
DEEP	:	[5] [20] [20] [5]
POUR	:	[5] [15] [15] [5]
PIN	:	[5] [10] [5]
NONE	:	[5] [25] [5] [25]
BOOK	:	[5] [20] [20] [5]
OPEN	:	[30] [5] [30] [5]
ATE	:	[0] [5] [0]
PAGE	:	[5] [25] [5] [25]
UNIT	:	[30] [5] [30] [5]

Directions (Qs. 8-12) : Find out the coded form of each of the words printed in bold.

8. **DOSE**
   (a) [5] [15] [5] [15] (b) [5] [10] [5] [30]
   (c) [5] [30] [5] [30] (d) [5] [0] [5] [15]
   (e) None of these
9. **SIP**
   (a) [5] [0] [5] (b) [0] [5] [0]
   (c) [5] [5] [5] (d) [5] [10] [5]
   (e) None of these
10. **AGED**
   (a) [0] [5] [0] [5] (b) [30] [10] [30] [10]
   (c) [30] [5] [30] [5] (d) [25] [5] [25] [5]
   (e) None of these
11. **DATA**
   (a) [5] [30] [5] [30] (b) [5] [25] [5] [25]
   (c) [5] [15] [5] [15] (d) [5] [10] [5] [10]
   (e) None of these
12. **EVE**
   (a) [0] [5] [0] (b) [0] [15] [0]
   (c) [15] [15] [15] (d) [0] [10] [10]
   (e) None of these

Directions (Qs. 13-17): Which of the words denoted by (A), (B), & (C) can be the correct words (s) for the codes given against each questions number?

13. [5] [25] [5] [25]
   (A) TRAP
   (B) DRAW
   (C) BOAT
   (a) A and B only (b) B and C only
   (c) A and C only (d) All the three
   (e) None of these
14. [5] [20] [20] [5]
   (A) DOLL
   (B) MOOD
   (C) BEEP
   (a) A and B only (b) B and C only
   (c) A and C only (d) All the three
   (e) None of these
15. [5] [10] [5]
   (A) MAN
   (B) TOP
   (C) CAT
   (a) A and B only (b) B and C only
   (c) A and C only (d) All the three
   (e) None of these

16. [0] [5] [0]
(A) ARE
(B) AND
(C) ORE
(a) None (b) All the three
(c) A and B only (d) B and C only
(e) A and C only

17. [30] [5] [30] [5]
(A) ARID
(B) EVIL
(C) OURS
(a) A and B only (b) B and C only
(c) A and C only (d) All the three
(e) None of these

18. A trader in order to code the prices of article used the letters of PSICHOLAZY in the form of '0 to 9' respectively. Which of the following code stands for ₹ 875.50?
(a) AIL.HP (b) AIL.HS
(c) ZYA.HO (d) ZCA.OP
(e) None of these

19. If B is coded as 8, F is coded as 6, Q is coded as 4, D is coded as 7, T is coded as 2, M is coded as 3, and K is coded as 5, then what is the coded form of QKTBFM?
(a) 452683 (b) 472683
(c) 452783 (d) 425783
(e) None of these

20. If in a certain code language 'pen pencil' is written as '$ £', 'eraser sharpener' is written as @ #', and 'pencil eraser' is written as '$ @', then what is the code for 'pen'?
(a) £ (b) @
(c) $ (d) #
(e) None of these

21. In a certain code language GAME is written as '$ ÷ * %' and BEAD is written as '# % ÷ ×'. How will the word MADE be written in that code language?
(a) $ ÷ × % (b) * ÷ $ %
(c) * ÷ × % (d) # ÷ × %
(e) None of these

22. In a certain code language BORN is written as APQON and LACK is written as KBBLK. How will the word GRID be written in that code language?
(a) FQHCD (b) FSHED
(c) HSJED (d) FSHCD
(e) None of these

23. In a certain code language STREAMLING is written as CGTVUHOJMN. How will the word PERIODICAL be written in that language?
(a) PJSFQMNBJE (b) QKTGRMBDJE
(c) QKTGRMCEKF (d) PJSFQMBDJE
(e) None of these

24. If 'green' is called `white', `white' is called `yellow , 'yellow' is called `red', `red' is called `orange', then which of the following represents the colour of sunflower?
(a) red (b) yellow
(c) brown (d) indigo
(e) None of these

25. In a certain code language GEOPHYSICS is written as IOPDHZRJBT. How is ALTIMETE₹ written in that code'?
(a) NHULBFSDQT (b) NIUKBFSDQT
(c) NHUKCFSDQT (d) NHUKBFSEQT
(e) None of these

26. In a certain code BROUGHT is written as SGFVAQN. How is SUPREME written in that code?
(a) FNFSRTO (b) RTOSDLD
(c) DLDSRTO (d) DLDSTVQ
(e) None of these

27. If W means White, Y means Yellow, B means Black, G means Green, R means Red, which of the following will come next in the sequence given below?
W W Y W Y B W Y B G W Y B G R W W Y W Y B W Y B
(a) Red (b) White
(c) Green (d) Yellow
(e) None of these

28. In a certain code 'CLOUD' is written as 'GTRKF'. How is SIGHT written in that code?
(a) WGJHV (b) UGHHT
(c) UHJFW (d) WFJGV
(e) None of these

29. In a certain code CHAIR is written as # * • ÷ % and HIDE is written as * ÷ + $. How is DEAR written in that code?
(a) $ + • % 2 (b) + $ ÷ %
(c) $ + % ÷ 4 (d) + # • % 5
(e) None of these

30. In a certain code AROMATIC is written as BQPLBSJB. How is BRAIN written in that code?
(a) CQBJO (b) CSBJO
(c) CQBHO (d) CSBHO
(e) None of these

31. If 'yellow' means 'green', 'green' means 'white', white means 'red', 'red' means 'black', 'black' means 'blue' and 'blue' means 'violet', which of the following represents the colour of human blood?
(a) black (b) violet
(c) red (d) blue
(e) None of these

32. In a certain code 'FEAR' is written as ' + × ÷ * ' and 'READ' is written as '* × ÷ $ '. How is 'FADE' written in that code?
(a) + ÷ $ × (b) × ÷ + $
(c) $ ÷ + * (d) ÷ $ + ×
(e) None of these

33. In a certain code BREAK is written as ASDBJ. How is SOLAR written in that code?
(a) RPKBS (b) TPMBS
(c) RPKBQ (d) TPKBQ
(e) None of these

34. In a certain code language EMPHASIS is written as NDIOBRJR. How will CREATURE be written in that code language?
(a) SBBDUTSD (b) QBBDTUSD
(c) DSDBSTSF (d) SBDBUTDS
(e) None of these

35. In a certain code '289' means 'Read from newspaper', '276' means 'tea from field' and '85' means 'Wall newspaper'. Which of the following number is used for 'tea'?
(a) 2 (b) 6
(c) Either 7 or 6 (d) Either 2 or 6
(e) None of these

36. If RUMOUR can be written as QSJKPL, then how HERMIT can be written?
(a) GEPKHR (b) GCOIDN
(c) GCPIDM (d) GCPIEN
(e) None of these

37. In a certain code language 'CREATIVE' is written as 'BDSBFUJS'. How is 'TRIANGLE' written in that code?
(a) BSHSFHKM (b) BHSSMHHF
(c) BSSHFMKH (d) BHSSFKHM
(e) None of these

38. In a certain code 'BROTHER' is written as '$%53#4%' and 'DREAM' is written as '9%47 '. How is 'THREAD' written in that code?
(a) #3%479 (b) 3#%479
(c) 3$%479 (d) 3#% 79
(e) None of these

39. In a certain code language 'allow children to play on the ground' is written as 'play allow on children the to ground' then how will 'the do open not electric touch wires' be **decoded** from that language?
(a) not the electric do touch open wries
(b) do not touch the electric open wires
(c) do not touch the open electric wires
(d) not the do electric touch open wires
(e) None of these

40. In a certain code "MOUSE" is written as "PRUQC". How is "SHIFT" written in that code ?
(a) VJIDR (b) VIKRD
(c) RKIVD (d) VKIDR
(e) None of these

41. In a certain code, '253' means 'books are old'; '546' means 'man is old' and '378' means 'buy good books'. What stands for "are" in that code?
(a) 2 (b) 4
(c) 5 (d) 6
(e) 8

42. In a certain code, FRACTION is written as FNAITCOR. How is QUANTITATIVE written in that code ?
(a) QTNAVIAITETU (b) QIATAETUTNVI
(c) QTEATUIAVITN (d) QEAITATITNVU
(e) None of these

43. In a certain coding system APPLE stands for ETTPI. What is the code for 'DELHI'?
(a) CQMND (b) ZAHDE
(c) HIPLM (d) CQPLM
(e) None of these

44. In a certain code language, GRAPE is written as 27354 and FOUR is written as 1687. How is GROUP written in that code?
(a) 27384 (b) 27684
(c) 27685 (d) 27658
(e) 27862

45. WAYIN is written as TXVFX. How LBUK can be written in that code?
(a) IYRH (b) KATJ
(c) JZSI (d) NDWM
(e) NEAT

46. In a certain code language, if the word PARTNER is coded as OZQSMDQ, then what is the code for the word SEGMENT?
(a) TFHNFOU (b) RDFLDMS
(c) RDELDMS (d) RDFEDNS
(e) None of these

47. If DOCTOR is written as FQEVQT; how PATIENT can be written in that code?
(a) RVKGPV (b) RCKPGVV
(c) RCVKGPV (d) RVCKGVP
(e) None of these

48. If 'S' is written as 'H' 'R' as '@' 'A' as '∇' 'M' as '#', 'T' as '$' and 'E' as '%' then how is 'MASTER' written in that code ?
(a) #∇H$%@ (b) #H∇$%@
(c) #∇$H%@ (d) #∇H%@$
(e) None of these

49. In a certain code DEPUTATION is written as ONTADEPUTI. How is DERIVATION written in that code ?
(a) ONVADERITI (b) ONDEVARITI
(c) ONVAEDIRTI (d) ONVADEIRIT
(e) None of these

Directions (Qs. 50-54) : Select the correct alternatives by using below rules.

Digits : 9 2 1 7 5 3 6 4 8
Letters : B V M L D P A F R

Conditions for coding the group of digits:-

I. If the first as well as the last digits are even, both are to be coded by the code for the first digit.

II. If the first as well as the last digits are odd, both are to be coded by the code for the last digit.

50. **397416**
(a) PBLFMP (b) ABLFMA
(c) PVLFMA (d) PBDFMA
(e) None of these

51. **562183**
(a) PAVMRP (b) DAVMRD
(c) PAVMRD (d) DAVMRP
(e) None of these

52. **734192**
(a) DPFMBV (b) LPAMBV
(c) LPFMVB (d) LPFMBV
(e) None of the these

53. **812354**
(a) RLVPDF (b) FMVPDF
(c) RMVPDR (d) RMVADF
(e) None of these

54. **627851**
(a) PULRDM (b) AVLRDM
(c) AULRDM (d) ABLRDM
(e) None of these

Directions (Qs. 55-59) : These questions are based on code language which utilizes letters on the English alphabets. In each question, there is a word written in capital letters, with one letter underline. For each letter on that word there is a code written in small letters. That code is denoted by (a), (b), (c), (d) or (e) on the same order. You have to find out the exact code for the underlined letter in the word. The number of that code is the answer. Please note that the same letter appearing on other word (s) may be coded differently.

55. DUEL
(a) g (b) i
(c) p (d) j
(e) y

56. PITY
(a) g (b) b
(c) r (d) k
(e) None of these

57. RING
(a) it (b) rk
(c) mp (d) ti
(e) st

58. GOAL
(a) c (b) q
(c) e (d) io
(e) z

59. SLAP
(a) dx (b) ms
(c) vp (d) io
(e) None of these

CHAPTER 5

Direction & Distance

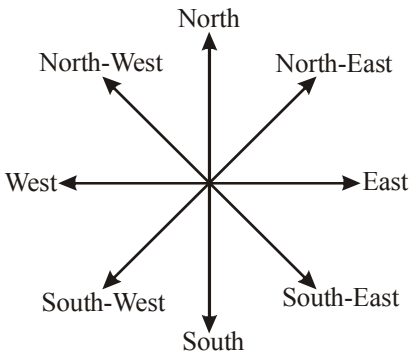
INTRODUCTION

This part of reasoning comes under the category of common sense reasoning. In fact, this segment gauges the sense of direction of a candidate. In every objective competitive examinations, these type of questions are asked. Particularly, in banking exams, these questions can be seen in every question papers. This is the reason, examinees are required to pay special attention towards such questions.

CONCEPT OF DIRECTION

In our day to day life, we make our concept of direction after seeing the position of sun. In fact, this is a truth that sun rises in the East and goes down in the West. Thus when we stand facing sunrise, then our front is called East while our back is called West. At this position our left hand is in the Northward and the right hand is in the Southward. Let us see the following direction map that will make your concept more clear:

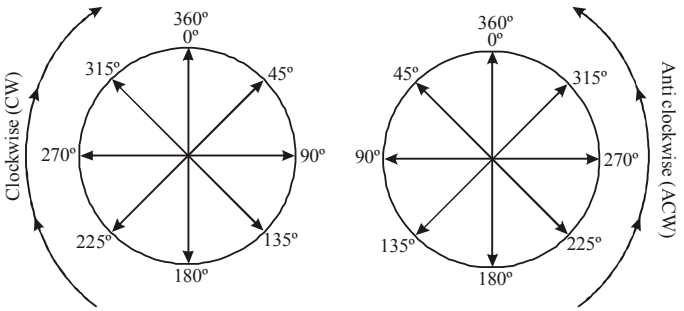
Direction Map



Note: *On paper North is always on top be while South is always in bottom.*

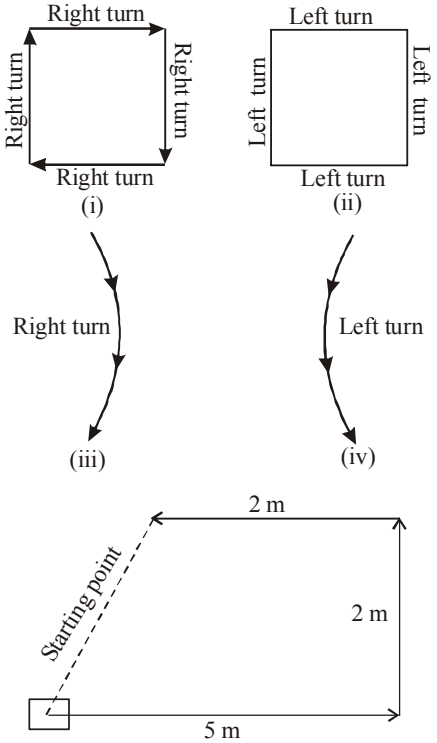
CONCEPT OF DEGREE

Let us see the following picture:



CONCEPT OF TURN

Right turn = Clockwise turn
Left turn = Anticlockwise turn
Let us understand it through pictorial representation:



IMPORTANT POINTS REGARDING DIRECTION

- If our face is towards North, than after left turn our face will be towards West while after right turn, it will be towards East.
- If our face is towards South, then after left turn our face will be towards East and after right turn it will be towards West.
- If our face is towards East, then after left turn our face will be forwards North and after right turn it will be towards South.
- If our face is towards West, then after left turn our face will be towards South and after right turn it will be towards North.
- If our face is towards North-West, then after left turn our face will be towards South-West and after right turn it will be towards North-East.
- If our face is towards South-West, then after left turn our face will be towards South-East and after right turn it will be towards North-West.
- If our face is towards South-East, then after left turn our face will be towards North-East and after right turn it will be towards South-West.
- If our face is towards North-East, then after left turn our face will be towards North-West and after right-turn it will be towards South-East.

CONCEPT OF MINIMUM DISTANCE

Minimum distance between initial and last point

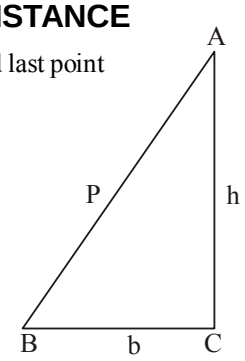
$h^2 = b^2 + p^2$, where

h = Hypotenuse

b = Base

P = Perpendicular

Remember this important rule is known as '**Pythogoras Theorem**'



SHADOW CASE

In Morning/Sunrise Time

(a) If a person facing towards Sun, the shadow will be towards his back or in West.

(b) If a person facing towards South, the shadow will be towards his right.

(c) If a person facing towards West, the shadow will be towards his front.

(d) If a person facing towards North, the shadow will be towards his left.

In Evening/Sunset Time

(a) If a person facing towards Sun, the shadow will be towards his back or in East.

(b) If a person facing towards North, the shadow will be towards his right.

(c) If a person facing towards East, the shadow will be towards his front.

(e) If a person facing towards South, the shadow will be towards his left.

Note : At 12:00 noon there is no shadow because the rays of the sun are vertically downward.

EXAMPLE 1. Raman walked 2 km West from his office and then turned South covering 4 km. Finally, he waked 3 km towards East and again move 1 km West. How far is Raman from his initial position.

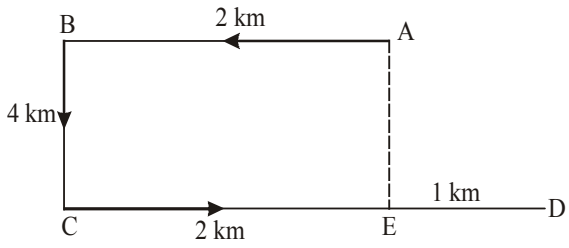
(a) 4 km **(b) 8 km**

(c) 10 km **(d) 7 km**

(e) None of these

Sol. Raman starts from his office A, moves 2 km West upto B, then 4 km to the South upto C, 3 km East upto D and finally 1 km West upto E, Thus his distance from the initial position A = AE = BC = 4 km.

Hence option (a) is the correct answer.



EXAMPLE 2. Rashmi walks 10 km towards North. She walks 6 km towards South then. From here she moves 3 km towards East. How far and in which direction is she with reference to her starting point?

(a) 6 km West **(b) 7 km East**

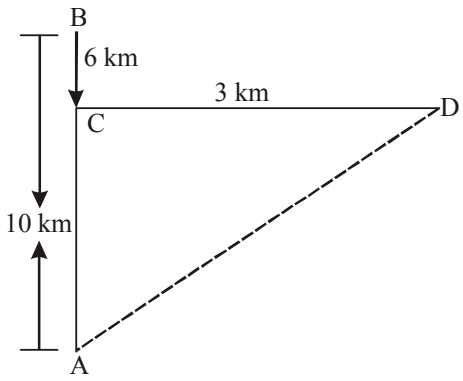
(c) 8 km North **(d) 5 km North-East.**

(e) None of these.

Sol. It is clear, Rashmi moves from A 10 km Northwards upto B, then moves 6 km Southwards upto C, then turns towards East and walks 3 km upto D.

Then, AC = (AB – BC) = 10 – 6 = 4 km

CD = 3km.



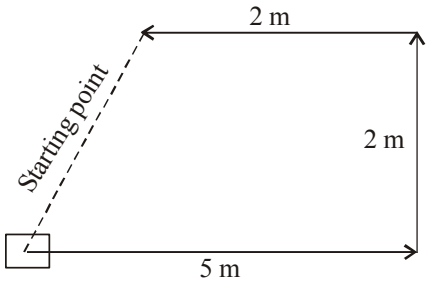
∴ Rashmi's distance from starting point A

$= AD = \sqrt{AC^2 + CD^2} = \sqrt{4^2 + 3^2} = \sqrt{16 + 9} = \sqrt{25} = 5$ km.

From figure, D is to the North-East of A, Hence (d) is the correct option

EXAMPLE 3. Early morning after sunrise, Rajesh was standing infront of his house in such a way that his shadow as falling exactly behind him. He starts walking straight and walks 5 m. He turns to his left and walks 3 m and again turning to his left walks 2m. Now in which direction is he from his starting point?

Sol. The shadow of Rajesh was falling exactly behind him. So he was facing towards East. Diagram clearly shows that Rajesh was in North-East with reference to the starting point.



EXERCISE

1. Q travels towards East. M travels towards North. S and T travel in opposite directions. T travels towards right of Q. Which of the following is **definitely true**?
   (a) M and S travel in the opposite directions.
   (b) S travels towards West.
   (c) T travels towards North.
   (d) M and S travel in the same direction.
   (e) None of these
2. P, Q, R, S and T are sitting around a circular table. *R* is to the right of *P* and is second to the left of *S*. *T* is not between *P* and *S*. Who is second to the left of *R*?
   (a) S (b) T
   (c) Q (d) Data inadequate
   (e) None of these
3. Of the five villages P, Q, R, S and T situated close to each other, P is to west of Q, R is to the south of P, T is to the north of Q, and S is to the east of T. Then, R is in which direction with respect to S?
   (a) North-West (b) South-East
   (c) South-West (d) Data Inadequate
   (e) None of these
4. M is to the East of D, F is to the South of D and K is to the West of F. M is in which direction with respect to K?
   (a) South-West (b) North-West
   (c) North-East (d) South-East
   (e) None of these
5. After 4 pm on a sunny day when Ramesh was returning from his school, he saw his uncle coming in the opposite direction. His uncle talked to him for some time. Ramesh saw that the shadow of his uncle was to his right side. Which direction was his uncle facing during their talk?
   (a) North (b) South
   (c) East (d) Data inadequate
   (e) None of these
6. A and B are standing at a distance of 20 km from each other on a straight East-West road. A and B start walking simultaneously, eastwards and westwards respectively, and both cover a distance of 5 km. Then A turns to his left and walks 10 km. 'B' turns to his right and walks 10 km and at the same speed. Then both turn to their left and cover a distance of 5 km at the same speed. What will be the distance between them?
   (a) 10 km (b) 5 km
   (c) 20 km (d) 25 km
   (e) None of these
7. Alok walked 30 metres towards east and took a right turn and walked 40 metres. He again took a right turn and walked 50 metres. Towards which direction is he from his starting point?
   (a) South (b) West
   (c) South-West (d) South-East
   (e) None of these
8. Ten boys are standing in a row facing the same direction. Abhijit, who is seventh from the left end of the row, is to the immediate right of Sushant, who is fifth from the right end of the row. Sushant is third to the right of Rupin. How many children are there between Abhijit and Rupin?
   (a) One (b) Two
   (c) Three (d) Data inadequate
   (e) None of these
9. Y is to the East of X, which is to the North of Z. If P is to the South of Z, then P is in which direction with respect to Y?
   (a) North (b) South
   (c) South-East (d) North-East
   (e) None of these
10. One afternoon, Manisha and Madhuri were talking to each other face to face in Bhopal on M.G. Road. If Manisha's shadow was exactly to the left of Madhuri, which direction was Manisha facing?
    (a) North (b) South
    (c) East (d) Data inadequate
    (e) None of these
11. 'X' started walking straight towards South. He walked a distance of 5 metres and then took a left turn and walked a distance of 3 metres. Then he took a right turn and walked a distance of 5 metres again. 'X' is facing which direction now?
    (a) North-East (b) South
    (c) North (d) South-West
    (e) None of these

Directions (Qs. 12-13) : Kiran walks 20m North, she turns right and walks 30m, then she turns right and walks 35m, then she turns left and walks 15m, then she again turns left and walks 15m. Once again she turns left and walks 15m.

12. How far is Kiran from her starting point ?
    (a) 25 m (b) 15 m
    (c) 45 m (d) 30 m
    (e) None of these
13. In which direction is Kiran facing now ?
    (a) East (b) West
    (c) North (d) South
    (e) None of these
14. A boy rode his bicycle northwards, then turned left and rode one km and again turned left and rode 2 km. He found himself exactly one km west of his starting point. How far did he ride northwards initially?
    (a) 1 km (b) 2 km
    (c) 3 km (d) 5 km
    (e) None of these
15. Ravi wants to go to the university. He starts from his home which is in the East and come to a crossing. The road to the left ends is a theatre, straight ahead is the hospital. In which direction is the university?
    (a) North (b) South
    (c) East (d) West
    (e) None of these

16. A rat runs 20' towards east and turns to right, runs 10' and turns to right, runs 9' and again turns to left, runs 5' and then to left, runs 12' and finally turns to left and runs 6'. Now, which direction is the rat facing?
(a) East (b) West
(c) North (d) South
(e) None of these

17. If South-east becomes North, North-east becomes West and so on, what will West become?
(a) North-east (b) North-west
(c) South-east (d) South-west
(e) None of these

18. P, Q, R and S are playing a game of carrom. P, R and S, Q are partners. S is to the right of R who is facing west. Then, Q is facing
(a) North (b) South
(c) East (d) West
(e) None of these

19. A and B start walking, from a point, in opposite directions. A covers 3 km and B covers 4 km. Then A turns right and walks 4 km while B turns left and walks 3 km. How far is each from the starting point ?
(a) 5 km (b) 4 km
(c) 10 km (d) 8 km
(e) None of these

20. Anuj started walking positioning his back towards the sun. After sometime, he turned left, then turned right and then towards the left again. In which direction is he going now?
(a) North or South (b) East or West
(c) North or West (d) South or West
(e) None of these

21. From her home, Prerna wishes to go to school. From home, she goes towards North and then turns left and then turns right, and finally she turns left and reaches school. In which direction her school is situated with respect to her home?
(a) North - East (b) North - West
(c) South - East (d) South - West
(e) None of these

22. One day, Ravi left home and cycled 10 km southwards, turned right and cycled 5 km and turned right and cycled 10 km and turned left and cycled 10 km. How many kilometres will he have to cycle to reach his home straight?
(a) 10 km (b) 15 km
(c) 20 km (d) 25 km
(e) None of these

23. Rasik walks 20 m North. Then, he turns right and walks 30 m. Then he turns right and walks 35 m. Then he turns left and walks 15 m. Then he again turns left and walks 15 m. In which direction and how many metres away is he from his original position?
(a) 15 metres West (b) 30 metres East
(c) 30 metres West (d) 45 metres East
(e) None of these

24. From his house, Lokesh went 15 km to the North. Then he turned West and covered 10 km. Then, he turned South and covered 5 km. Finally , turning to East, he covered 10 km. In which direction is he from his house?
(a) East (b) West
(c) North (d) South
(e) None of these

25. Kailash faces towards north. Turnings to his right, he walks 25 metres. He then turns to his left and walks 30 metres. Next, he moves 25 metres to his right. He then turns to the right again and walks 55 metres. Finally, he turns to the right and moves 40 metres. In which direction is he now from his starting point ?
(a) South-West (b) South
(c) North-West (d) South-East
(e) None of these

26. One evening before sunset two friends Sumit and Mohit were talking to each other face to face. If Mohit's shadow was exactly to his right side, which direction was Sumit facing?
(a) North (b) South
(c) West (d) Data inadequate
(e) None of these

27. Rohit walked 25 metres towards South. Then he turned to his left and walked 20 metres. He then turned to his left and walked 25 metres. He again turned to his right and walked 15 metres. At what distance is he from the starting point and in which direction?
(a) 35 metres East (b) 35 metres North
(c) 40 metres East (d) 60 metres East
(e) None of these

28. One morning after sunrise, Reeta and Kavita were talking to each other face to face at Tilak Square. If Kavita's shadow was exactly to the right to Reeta, which direction Kavita was facing?
(a) North (b) South
(c) East (d) Data inadequate
(e) None of these

29. I am facing east. I turn 100° in the clockwise direction and then 145° in the anticlockwise direction. Which direction am I facing now?
(a) East (b) North-east
(c) North (d) South-west
(e) None of these

30. A man is facing north-west. He turns 90° in the clockwise direction, then 180° in the anticlockwise direction and then another 90° in the same direction. Which direction is he facing now?
(a) South (b) South-west
(c) West (d) South-east
(e) None of these

31. A tourist drives 10 km towards East and turns to right side and takes a drive of another 3 km. He, then drives towards West (turning to his right) another 3 km. He, then turns to his left and walks another 2 km afterwards, he turns to his right and travels 7 km. How far is he from his starting point and in which direction ?
(a) 10 km, East (b) 9 km, North
(c) 8 km, West (d) 5 km, South
(d) None of these

Directions (Qs. 32-34) : Study the following information and answer the questions given below.

Seven villages A, B, C, D, E, F and G are situated as follow

E is 2 km to the West of B.
F is 2 km to the North of A.
C is 1 km to the West of A.
D is 2 km to the South of G.
G is 2 km to the East of C.
D is exactly in the middle of B and E.

32. Which two villages are the farther from one another?
(a) F and E (b) G and E
(c) D and C (d) F and B
(e) None of these

33. How far is E and F (in km)?
(a) 5 (b) $\sqrt{26}$
(c) 4 (d) $\sqrt{20}$
(e) None of these

34. A is in the middle of
(a) E and G (b) E and C
(c) G and C (d) F and G
(e) None of the above

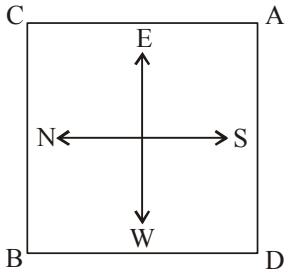
35. There is a ring road connecting points X, Y, Z and W. The road is in a complete circular form but having several approach roads leading to the centre. Exactly in the centre of the ring road there is a tree which is 20 km from point X on the cicular road. You have taken a round of circular road starting from point A and finish at the same point after touching points Y, Z and W. You then drive 20 km interior towards the tree from point X and from there reach somewher in between Y and Z on the ring road. How much distance you have to travel from the tree to reach the point between Y and Z on the ring road?
(a) 20 km (b) 15 km
(c) 80 km (d) 40 km
(e) None of these

Directions (Qs. 36-37) : Study the following information to answer the given questions.
Point A is 9 m towards the East of point B. Point C is 5 m towards the South of point A. Pont D is 3 m towards the West of point C. Point E is 5 m towards the North of point D. Point F is 7 towards the South of point S.

36. If a person walks in a straight line for 8 m towards West from point C, which of the following points would he cross the first ?
(a) F (b) B
(c) E (d) D
(e) Cannot be determined

37. Which of the following points are in a straight line ?
(a) A, C, F (b) D, E, B
(c) A, E, F (d) F, E, C
(d) D, F, E

Directions (Qs. 38-40) : Answer the following questions on the basis of the information given below :



Four security guards A, B, C nad D have been posted at the four corners of a huge cashew plantations farm.

38. Given the condition that none of the corners should be unmanned and both A and C start moving towards diagonally opposite corners, in which direction should D start moving so that he occupies a corners by travelling the minimum possible distance ?
(a) Clockwise (b) Anti-clockwise
(c) Either (a) or (b) (d) Cannot be determined
(e) None of the above

39. From the original position, A and B move diagonally to opposite corners and then one side each in the clockwise direction. Which of the corners is unmanned at the movement?
(a) South-West (b) South-East
(c) North-East (d) North-West
(d) None of the above

40. After the movement on above question, who is at the North-West corner?
I. A II. C III. B
(a) Only I (b) I and II
(c) II and III (d) I and III
(e) None of these

41. From the original position A and B move one arm length clockwise and then cross over to the corner diagonally opposite, C and D move one arm length anti – clockwise and cross over to the corner diagonally opposite. The original setting ADBC has now changed to
(a) CDAB (b) DCAB
(c) CBDA (d) None of the above
(e) Can't determined

CHAPTER 6

Blood Relation

INTRODUCTION

Problems based on blood relations are very important segment of analytical reasoning. The question papers of almost every competitive exams of objective type include questions based on blood relation. Particularly for getting jobs in banking sectors, one has a good skill of solving such questions. In this chapter, we are giving quicker approach to crack problems based on blood relation.

MEANING OF BLOOD RELATION

Blood relation does mean biological relation. Remember a wife and husband are not biologically related but they are biological parents of their own children. Similarly, brother, sister, paternal grandfather, paternal grandmother maternal grandfather, maternal grandmother, grandson, granddaughter, niece, cousin etc. are our blood relatives.

Types of Blood Relations

There are mainly two types of blood relatives:

(i) Blood relation from paternal side

(ii) Blood relation from maternal side

Now, we will discuss both kind of relations one-by one.

(i) **Blood relation from paternal side :** This type of blood relation can be further subdivided into three types:

- **(a) Past generations of father :** Great grandfather, great grandmother, grandfather, grandmother etc.
- **(b) Parallel generations of father:** Uncles (Brothers of father). aunts (sisters of father) etc.
- **(c) Future generations of father:** Sons, daughters, grandsons, granddaughters etc.

(ii) **Blood relation from maternal side:** This type of blood relations can also be subdivided into three types:

- **(a) Past generations of mother:** Maternal great grandfather, maternal great grandmother, maternal grandfather, maternal grandmother etc.
- **(b) Parallel generations of mother:** Maternal uncles, maternal aunts etc.
- **(c) Future generations of mother:** Sons, daughters, grandsons, granddaughters etc.

In the examinations, the questions are given in complicated way. In other words, in the given questions, the easy relationship takes the complicated form and examinees are expected to solve this complication in order to find out the correct answer. How does an examinee get aid of this complication? For this, an examinee sees the given data in the question with a serious eye; then tries to establish relation among elements of given data on the basis of certain logic and finally finds out the required answer. In fact complications in the asked question occur because of the given indirect relation. It does mean questions are in the form of indirect relation & one has to convert this indirect relation into direct relation. For example "only son of my father" does mean 'me' (myself). Here in place of 'me' indirect relation has been given in form of "only son of my father". Similarly, "the only daughter of the parents in laws of the husband of Vandana" does mean 'Vandana' herself. In this example also the sentence "the only daughter of the parents in laws of the husband of 'Vandana' has been given in the form of indirect relation. Below are given some indirect relation in the form of a list. Examinees are required to learn them by heart. If are keeps this list in one's mind, he/she will find it very easy to solve problems based on blood relations.

1.	Son of father or mother	:	Brother
2.	Daughter of father or mother	:	Sister
3.	Brother of father	:	Uncle
4.	Brother of mother	:	Maternal uncle
5.	Sister of father	:	Aunt
6.	Sister of mother	:	Aunt
7.	Father of father	:	Grandfather
8.	Father of father of father	:	Great grand father
9.	Father of grandfather	:	Great grandfather
10.	Mother of father	:	Grandmother
11.	Mother of mother of father	:	Great grandmother
12.	Mother of grandmother	:	Great grandmother
13.	Father of mother	:	Maternal grandfather
14.	Father of father of mother	:	Great maternal grand father
15.	Father of maternal grandfather	:	Great maternal grandfather
16.	Mother of mother	:	Maternal grandmother
17.	Mother of mother of mother	:	Great maternal grandmother
18.	Mother of maternal grandmother	:	Great maternal grandmother
19.	Wife of father	:	Mother
20.	Husband of mother	:	Father
21.	Wife of Grandfather	:	Grandmother
22.	Husband of Grandmother	:	Grandfather
23.	Wife of son	:	Daughter-in-law
24.	Husband of daughter	:	Son-in-law
25.	Brother of Husband	:	Brother-in-law
26.	Brother of wife	:	Brother-in-law
27.	Sister of Husband	:	Sister-in-law
28.	Sister of wife	:	Sister-in-law
29.	Son of brother	:	Nephew
30.	Daughter of brother	:	Niece

31.	Wife of brother	:	Sister-in-law
32.	Husband of sister	:	Brother-in-law
33.	Son of sister	:	Nephew
34.	Daughter of sister	:	Niece
35.	Wife of uncle	:	Aunt
36.	Wife of maternal uncle	:	Aunt
37.	Son/daughter of uncle/Aunt	:	Cousin
38.	Son/daughter of maternal uncle/maternal aunt	:	Cousin
39.	Son/daughter of sister of Father	:	Cousin
40.	Son/daughter of sister of Mother	:	Cousin
41.	Only son of grandfather	:	Father
42.	Only daughter of maternal grandfather	:	Mother
43.	Daughter of grandfather	:	Aunt
44.	Sons of grandfather other than father	:	Uncle
45.	Son of maternalgrandfather /maternal grand mother	:	Maternal Uncle.
46.	Only daughter in law of grandfather/ grandmother	:	Mother
47.	Daughters in law of grandfather/ grandmother	:	Aunt other than mother
48.	Daughters-in-law of maternal grandfather/	:	Aunt maternal grandmother
49.	Neither brother nor sister	:	Self

Note : 1. Any relation of Mother's side is called "Maternal".
2. Any relation of Father side is called "Pater nal ".

Some important information about blood relation

A. Without the information of gender, no relationship can be established between two people. For example, If given that R is the child of P & Q, then we can only say that P & Q are the parents of R. But we can not find out:
(i) R is the son of P & Q or R is the daughter of P & Q.
(ii) Who is mother of R and who is father of R.
But if we have given that P is a male, Q is a female and R is male, then we can easily say that R is the son of P and Q. Further we can also say that P is father of R and Q is mother of R.

B. Gender can not be decided on the basis of name. For example in Sikh community the names like Manjit, Sukhvinder etc. are the names of both male and female. Similarly, in the Hindu Community 'Suman' is the name of both male and female.

Remember: Solution Tips

(a) While solving blood relation based question, first of all find out that two persons between whom a relationship has to be established.
(b) Next, try to find out middle relation
(c) Finally findout the relationship between two persons to be identified for this purpose.

TYPE OF PROBLEMS

(1) General problems of blood relation
(2) Blood relation based on family tree
(3) Coded blood relationship.
Now, we will discuss all the three types of problems one by one

(1) GENERAL PROBLEM OF BLOOD RELATION

EXAMPLE 1. Pointing towards a photograph, Mr. Sharma said, "She is the only daughter of mother of my brother's sister." How is Mr. Sharma related to the lady in the photograph?

(a) Cousin **(b) Sister**
(c) Aunt **(d) Daughter in law**
(e) None of these

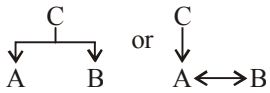
Sol. Here we have to find relationship between Mr. Sharma & the lady in the photograph.
Mother of my brother's sister does mean my (Mr. Sharma's) mother. Only daughter of Mr. Sharma's mother does mean "sister of Mr. Sharma". Hence option (b) is the correct answer.

(2) BLOOD RELATION BASED ON FAMILY TREE

EXAMPLE 2. Q is the brother of C and C is the sister of Q. R and D are brother and sister. R is the son of A while A and C are wife and husband. How is Q related with D.

For such type of question a family tree is made in which some symbols are used as below:
'⇔' is used for husband & wife.
'—' or '↔' is used for brother & sister
' | ' is used for parents (father or mother). Parents are put on top while children are put at the bottom.
'–' (minus sign) or 'O' is used for female.
'+' (plus sign) or □ is used for male.

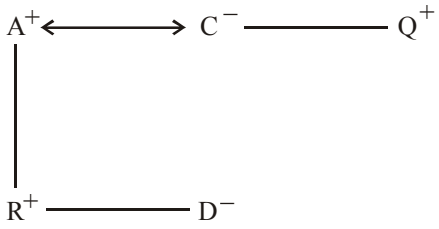
- Gender of A is unknown ⇒ A
- A and B are married to each other ⇒ A ⇔ B
- A and B are sebling ⇒A ↔ B or A – B
- A and B are children of C.



- B is only child of A and A is mother of B.

Now adopting and using the above given symbols we can make a family tree and solve the given problem, let us see the family tree for sample question:

EXAMPLE 3. Q is the brother of C and C is the sister of Q. R and D are brother and sister. R is the son of A while A & C are wife and husband. How is Q related with D.



As per the above example, Q is the brother of C and C is the sister of Q. Hence relation between C & Q has been presented as $\left(C^{-} — Q^{+}\right)$ where '–' sign above C makes it clear that C is a female and '+' sign above 'Q' makes it clear that Q is a male. Similarly for R and D. The presentation $\left(\overset{+}{R} — D^{-}\right)$ has been made. Further according to the question.

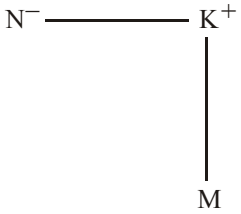
A and C are having a husband and wife relationship and hence this has been presented as $\left(\overset{+}{A} \Leftrightarrow C^{-}\right)$. As it is already given that C is the sister of Q and A and C are wife and husband, this becomes clear that A is the male member of the family and this is the reason A has '+' as its gender sign. Lastly, the vertical line gives father and son relationship and has been presented as $\begin{pmatrix} A^{+} \\ | \\ R^{+} \end{pmatrix}$. Now from this family tree it becomes clear that C is the mother of R and D and as Q is the brother of C, then Q will definitely be the maternal uncle of R & D. Hence we can say that Q is the maternal uncle of D and this is the required answer for our example question.

(3) CODED BLOOD RELATIONSHIP

EXAMPLE **4. Directions:** Read the following informations carefully to give the answers of following questions:
'P × Q' means P is the brother of Q
'P – Q' means P is the sister of Q
'P + Q' means P is the father of Q
'P ÷ Q' means P is the mother of Q.
Which of the following option is the presentation of M is the nephew of N?
(a) N – K + M
(b) N × K ÷ M
(c) N ÷ K × M
(d) N – K + M × T
(e) None of these.

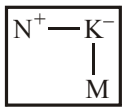
Sol. To solve it we will use the symbols of family tree in place of mathematical signs (+ , –, × & ÷). Let us make family tree presentation for every option:

Presentation for option (a) [N – K + M]
Here gender of M can not be find out so, this option is rejected, point to be noted that even without making a family tree. You



can find out that this option can not give you the gender of M. For this only a serious look at the option is enough.

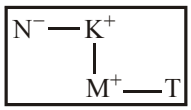
Presentation of option (b) [N× K ÷ M]



This family tree presentation also does not give the gender of M. Like option (a) this option gives you a clear indication, only by a serious look, that gender of M can not be find out and for this making family tree is not necessary. Hence option (b) is also rejected.

Presentation of option (c) [N ÷ K × M]
Like option (a) and (b), option (c) is also rejected and only a serious look can make you clear that in this case also the gender of M can not be find out

Presentation of option (d) [N – K + M × T]
This presentation makes it clear that N is the sister of K who is father of M. Here gender of M is clear that M is a male. Hence, M is clearly nephew of N.



Hence for sample question option (d) is the correct answer. Now we have come to the conclusion of this chapter. Readers are advised to practice more and more to crack such questions quick as possible.

EXERCISE

1. Anil, introducing a girl in a party, said, she is the wife of the grandson of my mother. How is Anil related to the girl?
   (a) Father (b) Grandfather
   (c) Husband (d) Father-in-law
   (e) None of these
2. A man said to a woman, "Your mother's husband's sister is my aunt." How is the woman related to the man ?
   (a) Granddaughter (b) Daughter
   (c) Sister (d) Aunt
   (e) None of these
3. Introducing Rajesh, Neha said, "His brother's father is the only son of my grand father". How Neha is related to Rajesh?
   (a) Sister (b) Daughter
   (c) Mother (d) Niece
   (e) None of these
4. Vinod is the brother of Bhaskar. Manohar is the sister of Vinod. Biswal is the brother of Preetam and Preetam is the daughter of Bhaskar. Who is the uncle of Biswal?
   (a) Bhaskar (b) Manohar
   (c) Vinod (d) Insufficient data
   (e) None of these
5. A man said to a woman, "Your brother's only sister is my mother." What is the relation of the woman with the maternal grandmother of that man?
   (a) Mother (b) Sister
   (c) Niece (d) Daughter
   (e) None of these

6. Pointing to a photograph, a man said, "I have no brother or sister but that man's father is my father's son." Whose photograph was it?
(a) His own (b) His son's
(c) His father's (d) His nephew's
(e) None of these

7. Pointing to a photograph, a lady tells Pramod, "I am the only daughter of this lady and her son is your maternal uncle," How is the speaker related to Pramod's father?
(a) Sister-in-law (b) Wife
(c) Sister (d) Aunt
(e) None of these

8. Introducing a man, a woman said, "His wife is the only daughter of my mother." How is the woman related to that man?
(a) Aunt (b) Wife
(c) Mother-in-law (d) Maternal Aunt
(e) None of these

9. Deepak said to Nitin, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife." How is the boy playing football related to Deepak?
(a) Son (b) Brother
(c) Cousin (d) Nephew
(e) None of these

10. A is the mother of B. C is the father of B and C has 3 children. On the basis of this information, find out which of the following relations is correct :
(a) C has three daughters.
(b) C has three sons.
(c) B is the son.
(d) B is the daughter
(e) None of these.

11. 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
(e) None of these

12. A is the brother of B. A is the brother of C. To find what is the relation between B and C. What minimum information from the following is necessary?
(i) Gender of C (ii) Gender of B
(a) Only (i) (b) Only (ii)
(c) Either (i) or (ii) (d) both (i) and (ii)
(e) None of these

13. Pointing to a girl, Abhishek said, "She is daughter of the only child of my father." How is Abhishek's wife related to that girl?
(a) Daughter (b) Mother
(c) Aunt (d) Sister
(e) None of these

14. Introducing Sarita, Meena said, "She is the only daughter of my father's only daughter." How is Meena related to Sarita?
(a) Niece (b) Cousin
(c) Aunt (d) Data inadequate
(e) None of these

15. Kalyani is mother-in-law of Veena who is Sister-in-law of Ashok. Dheeraj is father of Sudeep, the only brother of Ashok. How is Kalyani related to Ashok?
(a) Mother-in-law (b) Aunt
(c) Wife (d) Cousin
(e) None of these

16. If P $ Q means P is father of Q, P # Q means P is mother of Q, P * Q means P is sister of Q, then how is Q related to N in N # L $ P * Q?
(a) Grandson (b) Granddaughter
(c) Nephew (d) Data inadequate
(e) None of these

17. Pointing to a boy in a photograph, Akhil says, "He is the son of my mother's only son." How is Akhil related to that boy?
(a) Uncle (b) Brother
(c) Father (d) Cousin
(e) None of these

18. Pointing to a boy, Namrata says, "He is the son of my grandfather's only child." How is the boy related to Namrata?
(a) Brother (b) Cousin
(c) Uncle (d) Data inadequate
(e) None of these

19. Pointing to Kedar, Veena said, 'His mother's brother is the father of my son Nitin.' How is Kedar related to Veena?
(a) Niece (b) Aunt
(c) Nephew (d) Sister-in-law
(e) None of these

20. If 'P $ Q' means 'P is brother of Q', 'P # Q' means 'P is mother of Q' and 'P*Q' means 'P is daughter of Q', then who is the father in 'A # B $ C * D' ?
(a) D (b) B
(c) C (d) Data inadequate
(e) None of these

21. Pointing to a boy, Meena says, "He is the son of my grandfather's only son." How is the boy's mother related to Meena?
(a) Mother (b) Aunt
(c) Sister (d) Data inadequate
(e) None of these

22. If '$A + B$' means 'A is brother of B', '$A - B$' means 'A is sister of B', '$A \times B$' means 'A is wife of B', and '$A \div B$' means 'A is father of B', then which of the following indicates 'S is son of P'?
(a) $P \times Q \div R + S - T$ (b) $P \times Q \div S - R + T$
(c) $P \times Q \div R - T + S$ (d) $P \times Q \div R - S + T$
(e) None of these

23. A + B means B is brother of A; A × B means B is husband of A; A – B means A is mother of B; and A ÷ B means A is father of B. Then which of the following expressions indicates 'P' is grandmother of 'T'?
(a) $Q - P + R \div T$ (b) $P \times Q \div R - T$
(c) $P \times Q \div R + T$ (d) $P + Q \div R - T$
(e) None of these

Directions (Qs. 24-25) : Read the following information carefully and answer the questions which follow.

(i) If 'A × B' means 'A is the son of B'.
(ii) If 'A + B' means 'A is the father of B'.
(iii) If 'A > B' means 'A is the daughter of B'.
(iv) If 'A < B' means 'A is the wife of B'.

24. Which of the following pairs of people represent first cousins with regard to the relations given in the expressions, if it is provided that A is the sister of J : 'L > V < J + P' and 'S × A < D + F < E + K'
(a) LP (b) SP
(c) SK (d) SF
(e) Can't be determined

25. What will come in the place of the question mark (?), if it is provided that M is the grandmother of F in the expression 'F × R < S' ? M'
(a) > (b) <
(c) + (d) ×
(e) Can't be determined

Directions (Qs. 26-30) : Each of the questions below consists of a question and two or three statements given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

26. Who is the uncle of L?
A P, brother of M, is father of L; M is father of S.
B R is father of L's cousin.
(a) A alone is sufficient
(b) B alone is sufficient
(c) Either A alone or B alone is sufficient
(d) Both A and B together are not sufficient
(e) Both A and B together are necessary

27. How is A related to B?
A P, the only son of A, has two sisters.
B A's son is the brother of the only sister of B.
C B and P are children of A.
(a) Both A and C are sufficient
(b) Only B
(c) Either A or B
(d) Only C
(e) None of these

28. How many daughters does W have?
A B and D are sisters of M.
B M's father T is the husband of W.
C Out of three children which T has, only one is boy.
(a) Only A and C (b) All A, B and C
(c) Only B and C (d) Only A and B
(e) None of these

29. Is F grandaughter of B?
A B is father of M. M is the sister of T. T is the mother of F.
B S is the son of F. V is the daughter of F. R is the brother of T.
(a) A alone is sufficient
(b) B alone is sufficient
(c) Either A alone or B alone is sufficient
(d) Both A and B are not sufficient
(e) Both A and B together are necessary.

30. How is P related to J?
A M is the brother of P and T is the sister of P
B P's mother is married to J's husband, who has one son and two daughters
(a) A alone is sufficient
(b) B alone is sufficient
(c) Either A alone or B alone is sufficient
(d) Both A and B are not sufficient
(e) Both A and B together are necessary.

Directions (Qs. 31-32) : Study the following information carefully and answer the given questions based on it:

(A) 'P × Q' means 'Q is mother of P'.
(B) 'P + Q' means 'P is father of Q'.
(C) 'P – Q' means 'P is brother of Q'.
(D) 'P ÷ Q' means 'Q is sister of P'.

31. Which of the following means 'M is niece of T'?
(a) M ÷ D + T × R (b) T – D + R ÷ M
(c) T × D + R ÷ M (d) Cannot be determined
(e) None of these

32. Which of the following statements is redundant to answer the question no. 31?
(a) A only (b) B only
(c) Either A or B only (d) Either C or D only
(e) All are required

Directions (Qs. 33-34): Study the meaning of the given symbols and answer the questions based on it.

(i) 'P × Q' means 'Q' is mother of P'.
(ii) 'P + Q' means 'P' is brother of Q'.
(iii) 'P – Q' means 'P' is sister of Q'.
(iv) 'P ÷ Q' means 'Q' is father of P'.

33. Which of the following definitely means R is grandson of K?
(a) R × T ÷ K (b) M + R × T ÷ K
(c) M – R × T ÷ K (d) Cannot be determined
(e) None of these

34. Which of the following statements is superfluous to answer the above question?
(a) None (b) (i) Only
(c) (ii) Only (d) (iii) Only
(e) (iv) Only

Directions (Qs. 35-36): Study the following information and answer the questions given below.

(a) '$P \div Q$' means 'Q is father of P'
(b) '$P \times Q$' means 'P is sister of Q'.
(c) $P + Q$' means 'P is brother of Q'.
(d) '$P - Q$' means 'Q is mother of P'.

35. Which of the following means R is nephew of T?
(a) $R + N - Q \times T$ (b) $R - Q \times N \times T$
(c) $R - N \times T$ (d) $T + M \div R$
(e) $T - Q \div R$

36. Which of the following is/are redundant to answer the above question?
(a) (ii) only
(b) (i) only
(c) (i) and (iv) only
(d) Either (i) and (iii) or (ii) and (iv)
(e) Either (i) and (ii) or (iii) and (iv)

Directions (Qs. 37-38): Study the following information carefully and answer the given questions following it.

(i) '$P \times Q$' means 'Q' is the mother of 'P'.
(ii) '$P - Q$' means 'P' is the brother of 'Q'.
(iii) '$P + Q$' means 'P' is the father of 'Q'.
(iv) '$P \div Q$' means 'Q' is the sister of 'P'.

37. Which of the following means M is the daughter of K?
(a) $K + R \div M$ (b) $K \div M + R$
(c) $K \times R \div M$ (d) $K - R \times M$
(e) None of these

38. Which of the following statement(s) is redundant to answer the above question?
(a) Both (i) and (ii) (b) (i) only
(c) (ii) only (d) Either (i) or (iii) and (ii)
(e) None of these

Directions (Qs. 39-43) : Read the following information carefully and answer the questions given below it.

(i) There is a group of six persons A, B, C, D, E and F in a family. The are Psychologist, Manager, Lawyer, Jeweller, Doctor and Engineer.
(ii) The Doctor is the grandfather of F who is a Psychologist.
(iii) The Manager D is married to A.
(iv) C, the Jeweller, is married to the Lawyer.
(v) B is the mother of F and E.
(vi) There are two married couples in the family.

39. What is the profession of E?
(a) Doctor (b) Jeweller
(c) Manager (d) Psychologist
(e) None of these

40. How is A relateed to E ?
(a) Brother (b) Uncle
(c) Father (d) Grandfather
(e) None of these

41. How many male members are there in the family?
(a) One (b) Three
(c) Four (d) Two
(e) Can't be determined

42. What is the profession of A?
(a) Doctor (b) Lawyer
(c) Jeweller (d) Manager
(e) None of these

43. Which of the following is one of the pairs of couples in the family?
(a) AB (b) AC
(c) AD (d) Can't be determined
(e) None of these

Directions (Qs. 44-48) : Read the following information carefully and answer the questions given below it.

P, Q, R, S, T and X are members of a family. There are two married couples. Q is an engineer and the father of T. X is the grandfather of R and is a lawyer. S is the grandmother of T and is a housewife. There is one engineer one lawyer, one teacher, one housewife and two students in the family.

44. Who is the husband of P ?
(a) R (b) X
(c) Q (d) S
(e) T

45. Which of the following are two married couples?
(a) XS, QP (b) XS, QT
(c) XS, RP (d) TS, RX
(e) None of these

46. Which of the following is definitely a group of a male members?
(a) Q, X, T (b) X, T
(c) Q, X, P (d) Q, X
(e) None of these

47. Who is the sister of T ?
(a) R (b) S
(c) P (d) Data inadequate
(e) None of these

48. Which of the following can be P's profession?
(a) Housewife (b) Engineer
(c) Teacher (d) Engineer or Teacher
(e) Housewife or Teacher

Directions (Qs. 49 and 50) : Read the following information carefully and answer the questions which follow.

(i) If 'A×B' means 'A is father of B'.
(ii) If 'A+B' means 'A is wife of B'.
(iii) If 'A ÷ B' means 'A is daughter of B'.
(iv) If 'A – B' means 'A is son of B'.

49. What will come in the place of the question mark, to establish that Q is the nephew of T in the expression
'Q ? R ÷ S × T' ?
(a) + (b) ×
(c) – (d) ÷
(e) Either – or ÷

50. Which of the following relations are true based upon the relations given in the equation 'A – B × C + D – E'?
(a) C is mother of A (b) E is wife of B
(c) D is brother of A (d) E is mother-in-law of C
(e) None is true

CHAPTER 7

Time Sequence, Number & Ranking Test

TIME SEQUENCE

To solve problems related to time sequence, let us gather 1st the following informations :

1 Minute = 60 seconds
1 Hour = 60 minutes
1 Day = 24 hours
1 Week = 7 days
1 Month = 4 weeks
1 Year = 12 months
1 Ordinary year = 365 days
1 Leap year =366 days
1 Century = 100 years

REMEMBER

★ A day is the period of the earth's revolution on its axis.

★ A 'Solar year' is the time taken the earth to travel round the sun. It is equal to 365 days, 5 hours, 48 minutes and $47\frac{1}{2}$ seconds nearly.

★ A 'Lunar month' is the time taken by the moon to travel round the earth. It is equal to nearly 28 days.

Leap Year

- If the number of a given year is divisible by 4, it is a leap year. Hence, the years like 1996, 2008, 2012 are leap years. But years like 1997, 1991, 2005, 2007 are not divisible by 4 and therefore, such years are not leap years.
- In a leap year, February has 29 days.
- A leap year has 52 weeks and 2 days. Therefore, a leap year has 2 odd days.

Ordinary year

- An ordinary year has 12 months.
- An ordinary year has 365 days.
- An ordinary year has 52 weeks and 1 day. Therefore, an ordinary year has 1 odd day.

Century (100 years)

- A century has 76 ordinary years and 24 leap years.
- A century has 5 odd days.

Odd days

Odd days in an ordinary year = 1
Odd days in a leap year = 2
Odd days in 100 years = 5
Odd days in 200 years = (5 × 2) = 1 week + 3 days = 3
Odd days in 300 years = (5 × 3) = 2 weeks + 1 day = 1
Odd days in 400 years = (5 × 4 + 1) = 21 days
= 3 weeks + 0 day = 0
Similarly, each 800, 1600, 2000, 2004, etc. has 0 odd days.

EXAMPLE 1. Neena returned house after 3 days earlier than the time she had told her mother. Neena's sister Veena reached five days later than the day Neena was supposed to return. If Neena returned on Thursday, on what day did Veena return ?

(a) Friday (b) Saturday
(c) Wednesday (d) Sunday
(e) None of these

Sol. Neena returned home on Thursday. Neena was supposed to return 3 days later, i.e., on Sunday.

Veena returned five days later from Sunday. i.e., on Friday.
∴ Option (a) is the correct option.

EXAMPLE 2. Vandana remembers that her father's birthday is between 14th and 15th of June. Whereas her brother remembers that their Father's birthday is between 14th and 18 th of June. On which day is their Father's birthday ?

(a) 14 th June (b) 16 th June
(c) 15 th June (d) 18 th June
(e) None of these

Sol. According to Vandana her father's birthday is on one of the days among 14 th and 15 th June. According to Vandana's brother, the father's birthday is on one of the days among 15 th, 16th and 17th June.

It is obvious that the father's birthday is on the day common to both the above groups. The common day is 15th June. Hence, the father's birthday falls on 15 th June.
∴ Option (c) is the correct option.

EXAMPLE 3. January 5, 1991 was a Saturday. What day of the week was March 4, 1992 ?

(a) Wednesday (b) Thursday
(c) Saturday (d) Friday
(e) None of these

Sol. Total number of days between Jan 5, 1991 and March 4, 1992

= 360 days in 1991 + (31 + 29 + 4) days in 1994.
=360 + 64 = 424
= 60 weeks + 4 days = 4 odd days
∴ March 4, 1992 is 4 days beyond Saturday i.e., Wednesday
∴ Correct option is (a).

NUMBER TEST

In such test, generally you are given a long series of numbers. The candidate is required to find out how many times a number satifying the conditions specified in the question occurs.

EXAMPLE 4. How many 8s are there in the following number sequence which are immediately preceded by 5 but not immediately followed by 3?

3 8 5 8 4 5 8 3 9 8 8 5 8 8 8 9 3

(a) One **(b) 4**
(c) 3 **(d) 2**
(e) None of these

Sol. Let use see the following :

3 8 8 4 5 **8** 3 9 8 8 **5** **8** 8 8 9 3

Clearly, two such 8s are there.

∴ Option (b) is correct.

EXAMPLE 5. What will be last digit of the 3rd number from top when the numbers given below are arranged in descending order after reversing the position of the digits within each number?

517 325 639 841 792

(a) 2 **(b) 5**
(c) 7 **(d) 3**
(e) None of these

Sol. The given numbers are :

517 325 639 841 792

After reversing, the numbers becomes as follows :

715 523 936 148 297

When arranged in descending order the numbers become as follows :

936 715 523 297 148

Now, the third number from top is 523. Hence, the last digit of 523 is 3.

∴ Option (d) is correct.

RANKING TEST

In such problems, the ranks of a person both from the top and from the bottom are given and on the basis of this the total number of persons is asked. Sometimes question is twisted also and position of a particular person is asked.

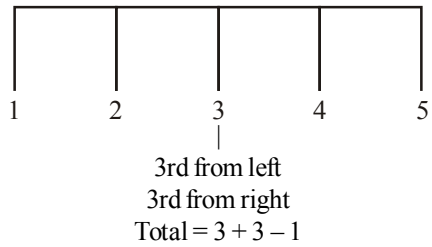
Shortcut Approach

Formulas to determine the positioning of a person

(1) Left + Right = Total + 1
(2) Left = Total + 1 – Right
(3) Right = 1 + 1 – left
(4) Total = left + Right

Note : *The above formulas are only for a single person's position*

E.g.



3rd from left
3rd from right
Total = 3 + 3 – 1

Shortcut Approach

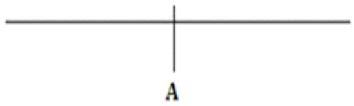
Same for vertical & Horizontal

(1) Total + 1 = top + Bottom
(2) Top = Total + 1 – Bottom
(3) Bottom = Total + 1 – Top
(4) Total = Top + Bottom

EXAMPLE 6. In a row of 40 students, A is 13th from the left end, find the rank from right end.

(a) 27 **(b) 28**
(c) 29 **(d) 30**
(e) None of these

Sol. (b) Total = 40



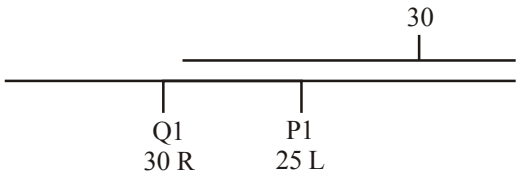
13L
A's rank from right side = Total + 1 – left
= 40 – 13 + 1
= 27 + 1
= 28

EXAMPLE 7: In a row 'P' is 25th from left end, Q is 30th from right end. Find the total number of students in all.

(a) 25 **(b) 30**
(c) 45 **(d) Cannot be determined**
(e) None of these

Sol. (d) Can't be Determined as there are more than 1 possibilities

Case 1



Case 2

Note : *When total is not given and 2 persons positions from left and right are given, then answer is Cannot be determined.*

EXAMPLE 8 : In a row of some children, S is 25th from left, T is 60th from right. If they interchanged their positions, then T becomes 70th from right end

Find

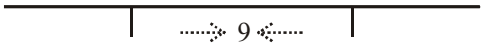
(i) What is S's right-hand position in new position

(ii) What is T's left hand position in earlier position.

(iii) How many numbers of persons between S and T.

(iv) What is the total strength

(v) If 'Q' is placed exactly between S & T then what is his rank from left end?



S1 25L T2 70R T1 60R S2 35L

Sol.

(1) S's new position from left end = 35

(2) T's left hand position in earlier position = 35 L

i.e. L = 25 + 9 + 1

= 35

Or

L = 94 + 1 – R

= 95 – 60

= 35

(3) Persons in between = 70 – 60 – 1

= 9

Or

Persons in between = Total – 25 – 60

= 94 – 25 – 60

= 94 – 85

= 9

(4) Total strength = 25 + 60 + 9

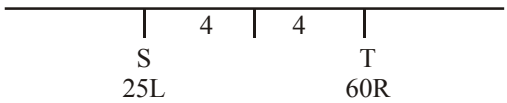
= 95

Or

Total = 70 + 25 – 1

= 94

(5)



Sol. 25 + 4 + 1 = 30 from left

EXAMPLE 9. Karishma ranks 10 th from the top and 15 th from the bottom in an examination. Find the total number of students in Karishma's class.

(a) 35 **(b) 31**

(c) 28 **(d) 30**

(e) None of these

Sol. As per the example; the class has

(i) 9 students higher than Karishma

(ii) 14 students lower than Karishma

(iii) Karishma

∴ Total number of students = 9 + 14 + 1 = 24

or 10 + 15 – 1 = 24

Hence, option (e) is correct.

EXERCISE

1. Mohan and Suresh study in the same class. Mohan has secured more marks than Suresh in the terminal examination. Suresh's rank is seventh from top among all the students in the class. Which of the following is **definitely true?**
   (a) Mohan stood first in the terminal examination.
   (b) There is at least one student between Mohan and Suresh in the rank list.
   (c) There are at the most five students between Mohan and Suresh in the rank list.
   (d) Suresh is five ranks lower than Mohan in the rank list.
   (e) None of these
2. Fifteen children are standing in a row facing north. Ravi is to the immediate left of Prabha and is eighth from the left end. Arjun is second from the right end. Which of the following statements is not true?
   (a) Prabha is 7th from right end.
   (b) There are four children between Prabha and Arjun.
   (c) There are five children between Ravi and Arjun.
   (d) Arjun is 13th from the left end.
   (e) Ravi is exactly in the middle.
3. Rajnish is older than Rajesh and Raman. Ramesh is older than Rajesh but younger than Rajeev. Raman is older than Rajeev. Who among them is oldest?
   (a) Rajeev (b) Rajesh
   (c) Rajnish (d) Ramesh
   (e) None of these
4. If every seconds Saturday and all Sundays are holidays in a 30 days month beginning on Saturday, then how many working days are there in that month? (Month starts from Saturday)
   (a) 20 (b) 21
   (c) 22 (d) 23
   (e) 24
5. If the positions of the first and the fifth digits of the number 83721569 are interchanged, similarly, the positions of the second and the sixth digits are interchanged, and so on, which of the following will be the third from the right end after the rearrangement?
   (a) 6 (b) 3
   (c) 2 (d) 7
   (e) None of these
6. The train for Lucknow leaves every two and half hours from New Delhi railway station. An announcement was made at the station that the train for Lucknow had left 40 minutes ago and the next train will leave at 18.00 hrs. At what time was the announcement made?
   (a) 15.30 hrs (b) 17.10 hrs
   (c) 16.00 hrs (d) 15.50 hrs
   (e) None of these
7. If the positions of the first and the sixth digits of the group of digits 5904627813 are interchanged, similarly, the positions of the second and the seventh are interchanged, and so on, which of the following will be the fourth from the right end after the rearrangement?
   (a) 4 (b) 9
   (c) 1 (d) 0
   (e) None of these
8. In a row of boys Akash is fifth from the left and Nikhil is eleventh from the right. If Akash is twenty-fifth from the right then how many boys are there between Akash and Nikhil?
   (a) 14 (b) 13
   (c) 15 (d) 12
   (e) None of these
9. The positions of the first and the sixth digits in the number 3597280164 are interchanged. Similarly, the positions of the second and the seventh digits are interchanged, and so on. Which of the following will be the fourth digit from the right end after the rearrangement?
   (a) 5 (b) 3
   (c) 9 (d) 4
   (e) None of these
10. In a shop, there were 4 dolls of different heights M, N, O and P. 'P' is neither as tall as 'M' nor as short as 'O'. 'N' is shorter than 'P' but taller than 'O'. If Anvi wants to purchase the tallest doll, which one should she purchase?
    (a) Either M or P (b) Either P or N
    (c) Only P (d) Only M
    (e) None of these
11. Ketan takes casual leave only on first working day of every month. The office has weekly offs on Saturday and Sunday. In a month of 30 days, the first working day happened to be Tuesday. What will be the day for his next casual leave?
    (a) Wednesday (b) Thursday
    (c) Friday (d) Monday
    (e) None of these
12. Abhay gave an application for a new ration card to the clerk on Monday afternoon. Next day was a holiday. So the clerk cleared the papers on the next working day on resumption of duty. The senior clerk checked it on the same day but forwarded it to the head clerk on next day. The head clerk decided to dispose the case on the subsequent day. On which of the following days was the case put up to the head clerk by the senior clerk?
    (a) Wednesday (b) Thursday
    (c) Friday (d) Saturday
    (e) None of these
13. "Jayant could not reach Pune from Mumbai on last Saturday day because of non-availability of tickets". Which of the following, if true, would support and strengthen this statement?
    (i) Last Friday evening, he had booked a luxury car for 3 days for going to a picnic spot near Vasal for his boss.

(ii) He was seen at railway reservation counter requesting for a ticket for Pune on Saturday morning.
(iii) His secretary had contacted several travel agents to get a seat for Jayant on last Thursday, Friday and even Saturday morning.
(iv) Jayant attended a dinner party last Saturday evening.
(v) Jayant's wife was reluctant to go to Pune last week.
(a) Only (i), (ii) and (v) (b) Only (ii) and (iii)
(c) Only (iv) and (v) (d) Only (i), (iii) and (iv)
(e) None of these

14. In a class of 180, when girls are twice the number of boys, Rupesh (a boy) ranked 34th from top. If there are 18 girls ahead of Rupesh, how many boys are after him in rank ?
(a) 45 (b) 44
(c) 60 (d) Cannot be determined
(e) None of these

15. If it is possible to make a number which is perfect square of a two-digit odd number with the second, the sixth and ninth digits of the number 187642539. which of the following is the digit in the unit's place of that two-digit odd number ?
(a) 1
(b) 7
(c) 9
(d) No such number can be made
(e) More than one such number can be made

16. A, B, C, D and E, when arranged in descending order of their weight from top, A becomes third, E is between D and A, C and D are not at the top. Who among them is the second?
(a) C (b) B
(c) E (d) Data inadequate
(e) None of these

17. Mohini went to the movies nine days ago. She goes to the movies only Thursday. What day of the week today?
(a) Thursday (b) Saturday
(c) Sunday (d) Tuesday
(e) None of these

18. Nitin was counting down from 32. Sumit was counting upwards the numbers starting from 1 and he was calling out only the odd numbers. What common number will they call out at the same time if they were calling out at the same speed?
(a) 19
(b) 21
(c) 22
(d) They will not call out the same number
(e) None of these

19. Count 9 in the numbers sequence which is followed by 7 and preceded by either 4 or 5. How many 9 are there in the sequence ?
1 2 3 7 8 9 1 4 9 7 3 6 9 8 1 5 3 5 9 7
(a) 1 (b) 2
(c) 3 (d) 4
(e) None of these

20. Find out how many times 2, 3 and 7 have present together, and always 3 in middle and 2 and 7 places either side of 3 ?
1 1 1 1 3 3 2 2 2 3 7 7 3 3 3 6 6 4 7 3 2 4 9 8 7 7 3 2 3 3 3 4 4 2 3 7
(a) 1 (b) 2
(c) 3 (d) 4
(e) None of these

21. Some boys are sitting in a line. Mahendra is on 17th place from left and Surendra is on 18th place from right. There are 8 boys in between them. How many boys are there in the line?
(a) 43 (b) 42
(c) 41 (d) 44
(e) None of these

22. 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 no. of boys in the class?
(a) 30 (b) 29
(c) 32 (d) 31
(e) None of these

23. In a queue, Vijay is fourteenth from the front and Jack is seventeenth from the end, while Mary is in between Vijay and Jack. If Vijay be ahead of Jack and there be 48 persons in the queue, how many persons are there between Vijay and Mary?
(a) 8 (b) 7
(c) 6 (d) 5
(e) None of these

24. Malay Pratap is on 13th position from the starting and on 17th position from the end in his class. He is on 8th position from the starting and on 13th position from the end among the students who passed. How many students failed?
(a) 7 (b) 8
(c) 9 (d) Can not be determined
(e) None of these

25. In a row of students, Ramesh is 9th from the left and Suman is 6th from the right. When they both interchange their positions 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
(e) None of these

26. In a row of children, Bhusan is seventh from the left and Motilal is fourth from the right. When Bhusan and Motilal exchange positions, Bhusan will be fifteenth from the left. Which will be Motilal's position from the right ?
(a) Eighth (b) Fourth
(c) Eleventh (d) Twelfth
(e) None of these

27. In a line of students Madhukar is on 15th position from right and Dhirendra is on 18th position from left. When they both interchange their positions then Madhukar is on 20th position from right. What will be the position of Dhirendra from left?
(a) 18th (b) 24th
(c) 23rd (d) 20th
(e) None of these

28. In a class of 45 students, among those students who passed, Anmol secured 11th position from upwards and 15th from downwards. How many students failed?
(a) 19 (b) 20
(c) 15 (d) 18
(e) None of these

29. In a row at a bus stop, A is 7th from the left and B is 9th from the right. Both of them interchange their positions and thus A becomes 11th from the left. How many people are there in that row?
(a) 18 (b) 19
(c) 20 (d) 21
(e) None of these

30. In a row of boys facing the North, A is sixteenth from the left end and C is sixteenth from the right end. B, who is fourth to the right of A, is fifth to the left of C in the row. How many boys are there in the row ?
(a) 39 (b) 40
(c) 41 (d) 42
(e) None of these

31. In a class of 60, where girls are twice that of boys, kamal ranked seventeenth from the top. If there are 9 girls ahead of kamal, how many boys are after him in rank ?
(a) 3 (b) 7
(c) 12 (d) 23
(e) None of these

32. Ravi is 7 ranks ahead of Sumit in a class of 39. If Sumit's rank is seventeenth from the last, what is Ravi's rank from the start?
(a) 14th (b) 15th
(c) 16th (d) 17th
(e) None of these

33. In a queue, A is eighteenth from the front while B is sixteenth from the back. If C is twentieth from the front and is exactly in the middle of A and B, then how many persons are there is the queue ?
(a) 45 (b) 46
(c) 47 (d) 48
(e) None of these

34. In a row of 21 girls, when Monika was shifted by four place towards the right, she became 12 th from the left end. What was her earlier positions from the right end of the row ?
(a) 9th (b) 10th
(c) 11th (d) 14 th
(e) None of these

35. In a row of girls, Rita and monika occupy the ninth place from the right end and tenth place from the left end respectively. If the interchange their places, then Rita and monika occupy seventh place from the right and eighteenth place from the left respectively How many girls are there in the row ?
(a) 25 (b) 26
(c) 27 (d) Data inadequate
(e) None of these

36. How many 3 are there in the following list in which followed by 9 and preceded 2, 3 or 4 ?
1 1 2 3 9 4 4 5 5 5 5 3 3 9 8 7 7 7 8 8 8 5 5 4 3 9 6 6 6 6
(a) 1 (b) 2
(c) 3 (d) 4
(e) None of these

37. Adi remember that his sister Ana's date of birth falls after 20th September but before 23rd September, while his father remember that Ana's birthday falls after 21st and before 24th September. What is the correct date of birth of Ana?
(a) 21st September (b) 22nd September
(c) 23rd September (d) 24th September
(e) None of these

38. Outside of an assembly house Jatin was told by a person taht each meeting takes place after 3hr 15min last meeting has been over just before 45 minutes and next meeting will take place at 2 pm. At what time did jatin receive this information?
(a) 10.20 am (b) 11.45 am
(c) 12.30 am (d) 11.30 am
(e) None of these

39. Meeta correctly remembers that her father's birthday is after 8th July but before 12th July. Her brother correctly remembers that their father's birthday is after 10th July but before 15th July. On which day of July was definitely their father's brithday?
(a) 10th (b) 11th
(c) 10th or 11th (d) Can't be determined
(e) None of these

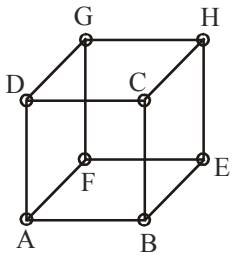
40. Abha correctly remembers that her mother's birthday is before Friday but after Monday. Her brother Abhay correctly remembers that their mother's birthday is after Wednesday while before Saturday. On which of the following days does their mother's birthday definitely fall?
(a) Tuesday (b) Wednesday
(c) Thursday (d) Friday
(e) Can't be determined

CHAPTER 8

Cube & Dice

CUBE

A cube is three dimensional figure whose length, breadth and height are equal and any two adjacent faces are inclined to each other at 90°. It has 6 faces, 8 corners and 12 edges.



- Corners of the cube are A, B, C, D, E, F, G and H.
- Edges of the cube are AB, BE, EF, AF, AD, CD, BC, EH, CH, GH, DG and FG.
- Faces of the cube are ABCD, EFGH, CDGH, BCHE, ABEF and ADFG.

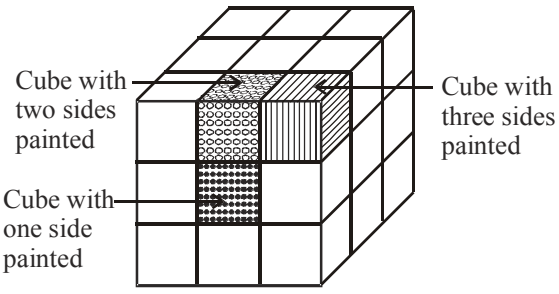
When a cube is painted on all of its faces with any colour and further divided into various smaller cubes of equal size, we get following results :

(i) Smaller cubes with no face painted will present inside faces of the undivided cube.

(ii) Smaller cubes with one face painted will present on the faces of the undivided cube.

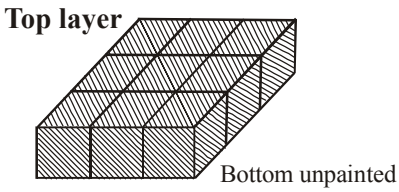
(iii) Smaller cubes with two faces painted will present on the edges of undivided cube.

(iv) Smaller cubes with three faces painted will present on the corners of the undivided cube.

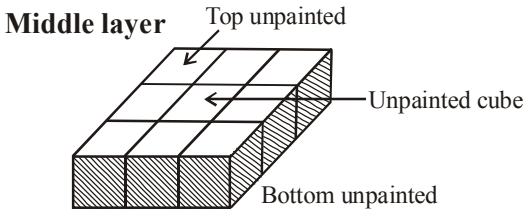


The above figure may be analysed by dividing it into three horizontal layers :

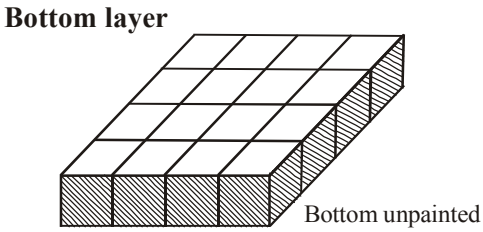
Layer I or top layer : The central cube has only one face coloured, four cubes at the corner have three faces coloured and the remaining 4 cubes have two faces coloured.



Layer II or middle layer : The central cube has no face coloured, the four cubes at the corner have two faces coloured and the remaining 4 cubes have only face coloured.



Layer III or bottom layer : The central cube has only one face coloured, four cubes at the corner have three faces coloured and the remaining 4 cubes have two faces coloured.



Also, if n = no. of divisions on the faces of cube

$$= \frac{\text{Length of the edge of undivided cube}}{\text{Length of the edge of one smaller cube}}.$$

Shortcut Approach

- Number of smaller cubes with no face painted = $(n-2)^3$
- Number of smaller cubes with one face painted = $(n-2)^3 \times 6$
- Number of smaller cubes with two faces painted = $(n-2) \times 12$
- Number of smaller cubes with three faces painted = 8

EXAMPLE 1. A cube is painted blue on all faces is cut into 125 cubes of equal size. Now, answer the following questions :

(i) How many cubes are not painted on any face?

(a) 8 **(b) 16**
(c) 18 **(d) 27**
(e) None of these

(ii) How many cubes are painted on one face only?

(a) 8 (b) 16
(c) 36 (d) 54
(e) None of these

Sol. Since there are 125 smaller cubes of equal size, therefore, n = no. of divisions on the face of undivided cube = 5.

(i) (d) Number of cubes with no face painted $= (n-2)^3$
$= (5-2)^3 = 27$

(ii) (d) Number of cubes with one face painted $= (n-2)^2 \times 6$
$= (5-2)^2 \times 6$
$= 54$

EXAMPLE 2. A cube of side 4 cm is painted black on the pair of one opposite surfaces, blue on the pair of another opposite surfaces and red on remaining pair of opposite surfaces. The cube is now divided into smaller cubes of equal side of 1 cm each. Then,

I. Find the number of smaller cubes with three surfaces painted.

II. Find the number of smaller cubes with two surfaces painted. And out of this

(i) Find the number of cubes with two surfaces painted with black and blue colour.

(ii) Find the number of cubes with two surfaces painted with blue and red colour.

(iii) Find the number of cubes with two surfaces painted with black and red colour.

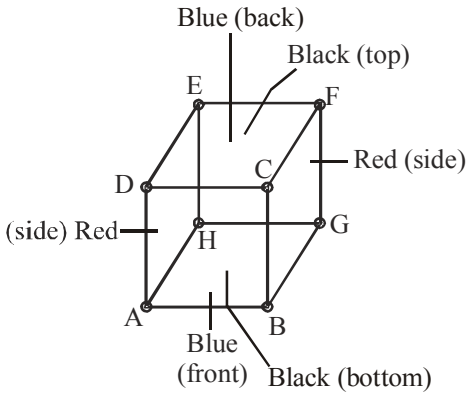
III. Find the number of smaller cubes with one surface painted. And out of this

(i) Find the number of cubes with one surface painted with black colour.

(ii) Find the number of cubes with one surface painted with blue colour.

(iii) Find the number of cubes with one surface painted with red colour.

Sol.



Here, $n = \frac{4}{1} = 4$

I. Number of smaller cubes with three surfaces painted = 8
(All three surfaces painted with different colours black, blue and red)

II. Number of smaller cubes with two surfaces painted
$= (4-2) \times 12 = 24$

Now, let faces ABCD and EFGH are painted with Blue.

Faces BCFG and ADEH are painted with Red.

Faces ABGH and CDEF are painted with Black. Therefore,

(i) Number of cubes with two surfaces painted with black and blue colour = 2(cubes along with edge AB) + 2(cubes along with edge CD) + 2(cubes along with edge GH) + 2(cubes along with edge EF) = 8

(ii) Number of cubes with two surfaces painted with blue and red colour = 2(cubes along with edge AD) + 2(cubes along with edge BC) + 2(cubes along with edge FG) + 2(cubes along with edge EH) = 8

(iii) Number of cubes with two surfaces painted with black and red colour = 2(cubes along with edge DE) + 2(cubes along with edge CF) + 2(cubes along with edge BG) + 2(cubes along with edge AH) = 8

III. Number of smaller cubes with one surfaces painted
$= (4-2)^2 \times 6 = 24$

(i) Number of cubes with one surface painted with black colour = 4(cubes on face ABGH) + 4(cubes on face CDEF) = 8

(ii) Number of cubes with one surface painted with blue colour = 4(cubes on edge face ABCD) + 4(cubes on face EFGH) = 8

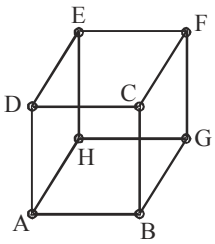
(iii) Number of cubes with one surface painted with red colour = 4(cubes on edge face ADEH) + 4(cubes on face BCFG) = 8

EXAMPLE 3. A cube is painted red on two adjacent faces and on one opposite face, yellow on two opposite faces and green on the remaining face. It is then cut into 64 equal cubes.

How many cubes have only one red coloured face?

(a) 4 (b) 8
(c) 12 (d) 16

Sol. (c)



Let faces ABCD, ABGH and CDEF are painted with red colour.

Faces BCFG and ADEH are painted with yellow and EFGH is painted with green colour.

Clearly the cubes which have only one red coloured face and all other faces uncoloured are the four central cubes at each of the three faces ABCD, ABGH and CDEF. Thus, there are 4 × 3 = 12 such cubes.

Directions (for Examples 4 to 7) : Read the information given below to answer the questions that follow.

I. A cube has six sides, each of which has a different colour : black, blue, brown, green, red and white.

II. The red side is opposite to the black.

III. The green side is between the red and the black.

IV. The blue side is adjacent to the white.

V. The brown side is adjacent to the blue.

VI. The red side is the bottom face.

EXAMPLE 4. The four colours adjacent to green are :

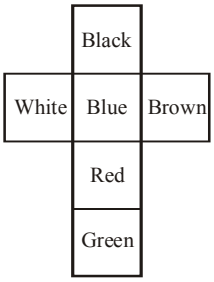
(a) black, blue, brown, red

(b) black, blue, brown, white

(c) black, blue, red, white

(d) black, brown, red, white

Sol. (d) When the cube is unfolded, it will look like as



The four colours adjacent to green are black, brown, red and white.

EXAMPLE 5. Which of the following can be deduced from the statements I, II and VI ?

(a) Black is on the top

(b) Blue is on the top

(c) Brown is on the top

(d) Brown is opposite to black

Sol. (a) The red side is opposite to the black. Therefore, if red is at the bottom, black will be at the top.

EXAMPLE 6. Which of the following statements given above adds no information ?

(a) II **(b) III**

(c) V **(d) VI**

Sol. (d) VI does not add to the information provided by I – V.

EXAMPLE 7. If the red side is exchanged for the green side and the blue is swapped for black, then which of the following is false ?

(a) Red is opposite to black.

(b) White is adjacent to brown.

(c) Green is opposite to blue.

(d) White is adjacent to blue.

Sol. (b) Adjacent to white, we have brown.

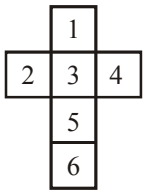
DICE

A dice is three-dimensional figure with 6 surfaces. It may be in the form of a cube or a cuboid. After observing these figures, we have to find the different side (opposite or adjacent sides) of the dice.

Dice Formation

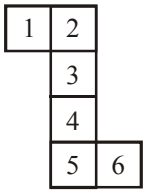
A Dice is formed by folding a sheet of paper. These forms may be

Form 1:



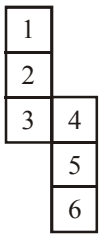
Number 1 is opposite to 5.
Number 2 is opposite to 4.
Number 3 is opposite to 6.

Form 2:



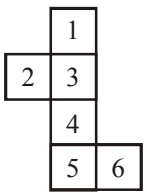
Number 1 is opposite to 6.
Number 2 is opposite to 4.
Number 3 is opposite to 5.

Form 3:



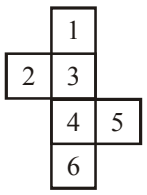
Number 1 is opposite to 3.
Number 2 is opposite to 5.
Number 4 is opposite to 6.

Form 4:



Number 1 is opposite to 4.
Number 2 is opposite to 6.
Number 3 is opposite to 5.

Form 5:

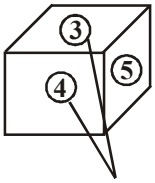


Number 1 is opposite to 4.
Number 2 is opposite to 5.
Number 3 is opposite to 6.

Types of Dice

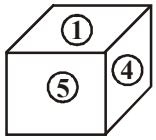
There are two types of Dice.

1. **Ordinary Dice :** In this type of dice, the sum of opposite sides is not 7 but the sum of two adjacent sides are seven.
2. **Standard Dice:** In such type of dice, the sum of opposite sides is 7 or sum of adjacent side is not 7.



Ordinary Dice

4+3 = 7



Here,
1+4 =5
4+5=9
1+5=6

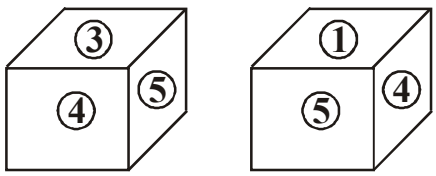
Standard Dice

Opposite of 1 .....6 (since 1+6 =7)
Opposite of 5 .....2 (since 5+2 =7)
Opposite of 3 .....4 (since 3+4 =7)

DIFFERENT RULES FOR SOLVING QUESTIONS RELATED TO DICE

Rule- 1 :

If two sides of cubes are common(has same numbers or symbols), then the remaining two will be opposites of each other.

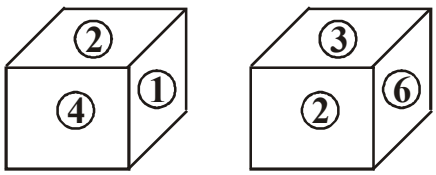


In above shown two dices, number 4 and 5 are common in both dices, hence, 3 and 1 will be apposite to each other.

Rule 2:

If one side of Dices is common

If one side of given dices are common then list these sides (numbers on them) either in clock-wise or anti-clockwise. Comparing the numbers obtained from both dices will give you the opposite numbers. See below given figure:



In this figure, number 2 is common in both dices. Now, writing the remaining no, in clock-wise direction, we get:

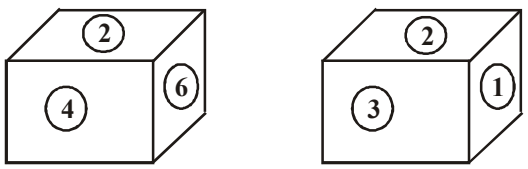
2.....1.....4 (dice 1)
2.....3.....6 (dice 2)

Through the above observed data, we can say that:
1 is opposite to 3
4 is opposite to 6
2 is opposite to 5

Rule 3:

If one side is common and it's place is same in both dices.

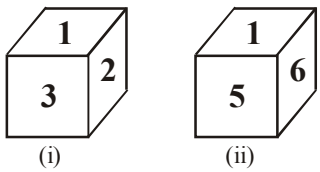
If one side is common in both cubes and it's place is same in both of these dices, then the remaining two sides of respective dices which appear in figure will be the opposite of each other. See figure for understanding this rule.



As you can see, number 2 is common in both of these dices and it appears in the same face in both these dices. In such case, the remaining two sides in both dices will be opposite to each other. In this figure, the opposite sides are :

4 is opposite to 3 (as the position of 4 and 3 are same on two dices)
6 is opposite to 1 (as the position of 6 and 1 are same on two dices)
2 is opposite to 5 (we already know the position of 1, 6, 3, 4 and 2. The only one remaining is 5)

EXAMPLE 8. Two positions of a dice are shown, when 4 is at the bottom, what number will be on the top?

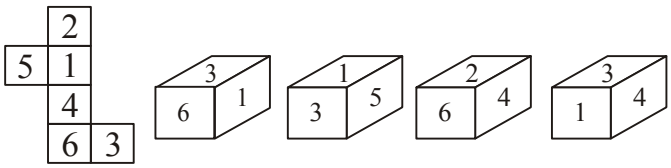


(i) (ii)

(a) 1 (b) 2 (c) 5 (d) 6

Sol. (a) From the two figures it is clear that the numbers 2, 3, 5 and 6 cannot appear opposite 1. So, 4 appears opposite 1. Therefore, when 4 is at the bottom, 1 will be on the top.

EXAMPLE 9. Sometimes we are provided with an explanatory diagram and after folding it in a proper manner it forms a dice. Which of the following dice will be formed from the explanatory diagram given?



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

Sol. From the given figure, first we will find numbers on opposite faces.

Like: 1 ⟷ 6 opposite
2 ⟷ 4 opposite
5 ⟷ 3 opposite

To find out opposite faces, take alternate numbers vertically. i.e. Take 2, then leave its adjacent face (i.e. 1) and then take 4. So, 2 is opposite to 4, similarly 1 is opposite to 6 and remaining numbers 5 and 3 are opposite to each other.

In dice I, we can see 1 and 6 which cannot be possible as two opposite faces cannot be seen at the adjacent side, Hence this dice cannot be obtained by folding the explanatory diagram.

In dice II, we can see 5 and 3 which cannot be possible as two opposite faces cannot be seen at the adjacent side. Hence this dice cannot be obtained by folding the explanatory diagram.

In dice III, we can see 2 and 4 which cannot be possible as two opposite faces cannot be seen at the adjacent side. Hence this dice cannot be obtained by folding the explanatory diagram.

In dice IV, 6, 5 and 2 cannot be seen which are the opposite faces of 1, 3 and 4 respectively. Hence our dice is dice IV.

EXERCISE

Directions (Qs. 1-4) : Read the following informations and answer the quesstions based on it.

I. The length, breadth and height of a rectangular piece of wood are 5 cm, 3 cm and 4 cm respectively.

II. Opposite sides of 5 cm × 4 cm piece are coloured in red.

III. Opposite sides of 4 cm × 3 cm are coloured in blue.

IV. Rest sides of 5 cm × 3 cm are coloured on green in both sides.

V. Now the piece of wood is cut in such a way that cubes of 1 cm × 1 cm × 1 cm will be made.

1. How many cubes shall have all the three colurs?
   (a) 8 (b) 10
   (c) 12 (d) 14
   (e) None of these
2. How many cubes shall not have any colour?
   (a) No any (b) 2
   (c) 4 (d) 6
   (e) None of these
3. How many cubes shall have only twop colurs red and green on their two sides?
   (a) 8 (b) 12
   (c) 16 (d) 20
   (e) None of these
4. How many cubes shall have only one colour?
   (a) 12 (b) 16
   (c) 22 (d) 28
   (e) None of these

Directions (Qs. 5 -8) : A cube is coloured red on all faces. It is cut into 64 smaller cubes of equal size. Now, answer the following questions based on this statement :

5. How many cubes have no face coloured?
   (a) 24 (b) 16
   (c) 8 (d) 0
   (e) None of these
6. How many cubes are there which have only one face coloured?
   (a) 4 (b) 8
   (c) 16 (d) 24
   (e) None of these
7. How many cubes have two red opposite faces?
   (a) 0 (b) 8
   (c) 16 (d) 24
   (e) None of these
8. How many cubes have three faces coloured?
   (a) 24 (b) 16
   (c) 8 (d) 4
   (e) None of these

Directions (Qs. 9-13) : Read the following information and answer the questions given below :

(i) Two wooden cubes 'A' and 'B' are placed adjacent to each other in front of you in such a way that 'A' is to your left and 'B' to your right.

(ii) One pair of opposite faces of cube "A' is painted by the same colour i.e. Red colour. Another pair of opposite faces is painted by Blue and one of the remaining faces of Yellow and other one is Violet.

(iii) Only two opposite faces of cube 'B' are painted by Blue colour. Remaining pairs of opposite faces are painted in such a way that opposite face of Brown colour is Green and one of the other two opposite faces is Black and the other is White.

9. If Red surface of 'A' and Blue of 'B' are touching the table and Yellow of 'A' and Black of 'B' are facing you, then which coloured side of 'B' is facing Blue side of A?
   (a) Brown (b) Green
   (c) White (d) Either Brown or Green
   (e) None of these
10. If Black surface of 'B' is kept on the top of Red surface of 'A' which coloured side of 'B' will face the sky?
   (a) White (b) Blue
   (c) Brown (d) Data inadequate
   (e) None of these
11. If the cube are rearranged one above the other in such a way that White face of 'B' is facing sky and Yellow face of 'A' is kept above it, then which coloured surface of 'A' will be facing you?
   (a) Violet
   (b) Blue
   (c) Either Blue or Red
   (d) Either Blue or Violet
   (e) Data inadequate
12. if 'B' is kept to your left with Green coloured surface facing you and 'A' kept at your right with Blue surface facing you then which of the following pairs of colours of 'A' and 'B' will be facing each other?
   (a) Yellow-Black (b) Yellow-White
   (c) Black-Violet (d) Violet-White
   (e) Data inadequate
13. If block 'B' is kept behind block 'A' in such a way that Brown coloured surface 'B' is facing Yellow coloured face of 'A' which colour of biock 'B' will be to your right?
   (a) Blue (b) Black
   (c) Brown (d) Data inadequate
   (e) None of these

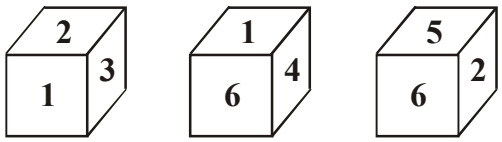
Directions (Qs. 14-16) : Three adjacent faces of a cube are coloured blue. The cube is then cut (once horizontally and once vertically) to form four cuboids of equal size, each of these cuboids is coloured pink on all the uncoloured faces and is then cut (as before) into four cuboids of equal size.

14. How many cuboids have two faces coloured pink?
(a) 1 (b) 3 (c) 4 (d) 6
(e) None of these

15. How many cuboids have three faces coloured pink?
(a) 9 (b) 7 (c) 5 (d) 3
(e) None of these

16. How many cuboids have three faces coloured blue?
(a) 4 (b) 2 (c) 1 (d) 0
(e) None of these

Directions (Qs. 17-21) : Following questions are based on the figures given below which represent different positions of the same dice.



(i) (ii) (iii)

17. Which number lies at the bottom face of the dice (i)?
(a) 4 (b) 2
(c) 1 (d) 3
(e) None of these

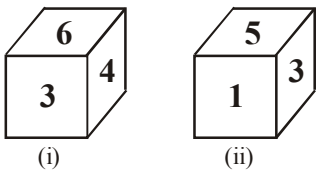
18. Which number lies at the bottom face of the dice (iii)?
(a) 1 (b) 2
(c) 6 (d) 4
(e) None of these

19. Which number lies opposite 6?
(a) 2 (b) 5
(c) 3 (d) 1
(e) None of these

20. Which of the following combinations shows the numbers at the adjacent surfaces of the number 4?
(a) 3, 2 (b) 6, 2
(c) 2, 3 (d) 6, 3
(e) None of these

21. Which of the following numbers does not appear on any one of the adjacent surfaces of the number 3?
(a) 2 (b) 6
(c) 4 (d) 1
(e) None of these

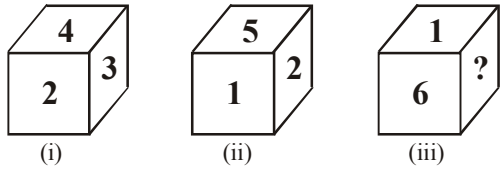
22. On the basis of two positions of dice, find what number will be on the opposite face of number 5 ?



(i) (ii)

(a) 1 (b) 3
(c) 4 (d) 5
(e) None of these

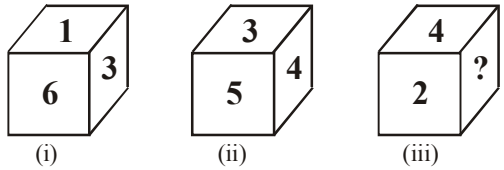
23. From the following positions of dice, find which number will come in place of '?'.



(i) (ii) (iii)

(a) 4 (b) 5 (c) 2 (d) 3
(e) None of these

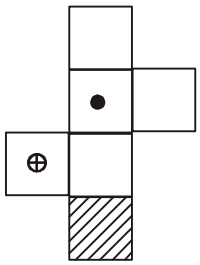
24. Three positions of the same dice are given below. Observe the figures carefully and find which number will come in place of '?'.

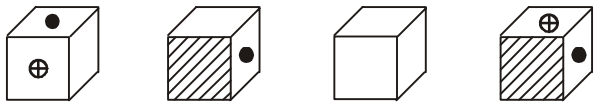


(i) (ii) (iii)

(a) 1 (b) 6 (c) 3 (d) 5
(e) None of these

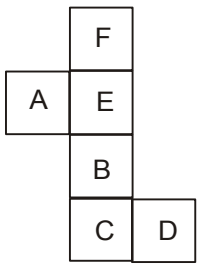
25. Select from the alternative, the box that can be formed by folding the sheet shown in figure (X) :


(X)

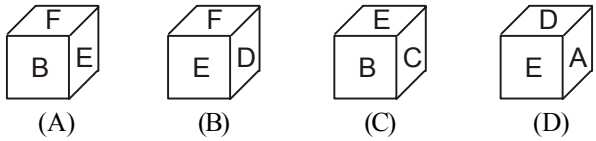

(A) (B) (C) (D)

(a) A only (b) A and C only
(c) A , C and D only (d) A, B, C and D
(e) None of these

26. Select from the alternative, the box that can be formed by folding the sheet shown in figure (X) :



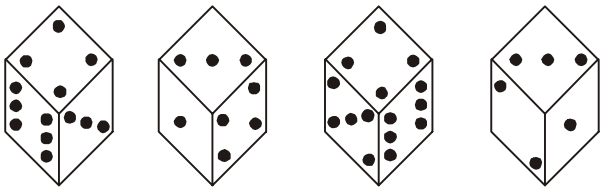
(X)



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

(a) A only (b) B only
(c) A and C only (d) A, B, C and D
(e) None of these

27. How many dots are there on the dice which face opposite the one with three dots ?

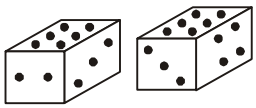


(i) (ii) (iii) (iv)

(a) 2 (b) 4 (c) 5 (d) 6
(e) None of these

Directions (Qs. 28-30) : In the pictures given below two positions of a single dice is shown. Each side of the dice has dots (.) printed on it, which vary from one to six. Study the positions and answer the following questions accordingly.

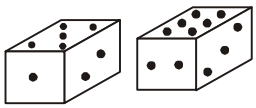
28. If there are three dots at the bottom, then how many dots will be on top?



(I) (II)

(a) 1 or 5 (b) 2 (c) 4 (d) 5
(e) None of these

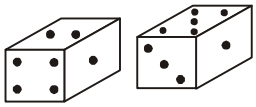
29. If the number of dots is three on top then how many will be at bottom?



(I) (II)

(a) 1 (b) 4 (c) 5 (d) 6
(e) None of these

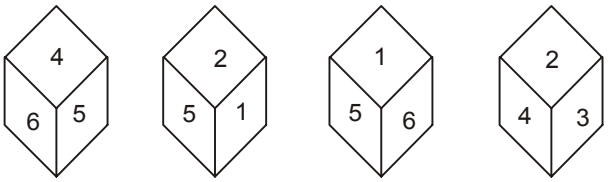
30. If 4 dots are at bottom then what will be the number of dots on top?



(I) (II)

(a) 3 (b) 2 (c) 5 (d) 6
(e) None of these

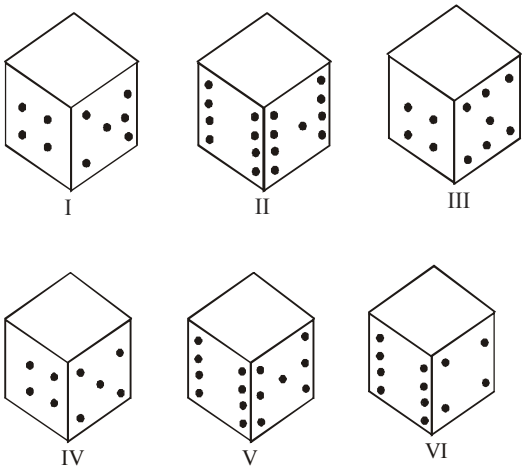
31. Which number is on the face 4, if the four different positions of a dice are as shown in the figures given below.



(i) (ii) (iii) (iv)

(a) 5 (b) 3 (c) 2 (d) 1
(e) None of these

Directions (Qs. 32-34) : Six dices with their top faces erased have been given. The opposite faces of the dices have dots which add up to thirteen. Work out the number of dots on the top faces, according to the question and spot your answer from amongst the given alternatives.



32. If the odd numbered dices have even number of dots at their bottom faces, what would be the total number of dots?

(a) 20 (b) 22
(c) 24 (d) 18
(e) None of these

33. If even numbered dices have odd number of dots at their top faces, what would be the total number of dots ?

(a) 19 (b) 18
(c) 17 (d) 16
(e) None of these

34. If dices II, V and VI have even number of dots at their bottom faces, what would be the total number of dots –

(a) 18 (b) 20
(c) 16 (d) 24
(e) None of these

35. A cube is cut in two equal parts along a plane parallel to one of its faces. One piece is then coloured red on the two larger faces and green on the remaining, while the other is coloured green on two smaller adjacent faces and red on the remaining. Each is then cut into 32 cubes of same size and mixed up.

How many cubes have only one coloured face each?

(a) 32 (b) 8
(c) 16 (d) 2
(e) None of these

CHAPTER 9

Problem Solving

INTRODUCTION

In this chapter you will see some typical problems in which you would be given a series of interlinked information and on the basis of those informations you would be expected to reach certain conclusions. Such questions are the essential part of certain examinations.

TYPES OF INFORMATIONS IN A GIVEN PROBLEM

1. Basic informations

(Useful secondary informations): It is given in first couple of sentences of given data are such that they give you some basic information that is essential to give you general idea of the situation.

2. Actual informations

Whatever remains after the basic informations are known as actual information.

While trying to solve a problem one should begin with actual information and useful secondary information should be solve by mind.

3. Negative informations

Actual informations having negative sentences are called negative information. A negative information does not inform us anything exactly but it gives a chance to eliminate a possibility.

For example, A is not the brother C.

TYPES OF PROBLEMS

1. Simple problems (based on categorisation)
2. Problems based on arrangement (Linear, circular, rectangular/square).
3. Problems based on comparison.
4. Problems based on blood relations.
5. Blood relations and profession based problems.
6. Problems based on conditional selection.
7. Miscellaneous problems.

Now, we will discuss all the types of problems one by one

1. Simple Problems (Based on Categorisation)

Tips to Solve Problems

These type of problems can easily be solved by construction of table.

EXAMPLE **1. (Qs.1-5): Read the following information carefully and answer the questions that follows:**

1. There are six cities L, M, N, O, P and Q.
2. L is not a hill station
3. M and P are not historical places
4. O is not an industrial city
5. L and O are not historical cities
6. L and M are not alike

1. Which two cities are industrial centers?
(a) L and M (b) P and Q
(c) N and O (d) M and Q
(e) L and O

2. Which two cities are historical places?
(a) L and M (b) M and Q
(c) N and Q (d) M and P
(e) L and O

3. Which two cities are hill stations?
(a) L and M (b) N and L
(c) M and O (d) L and Q
(e) None of these

4. Which city is a hill station and an industrial centre but not a historical place?
(a) P (b) Q
(c) L (d) M
(e) N

5. Which two cities are neither historical place nor industrial centre?
(a) L and M (b) O and P
(c) Q and N (d) M and O
(e) None of these

Ex. 1 (Problem format) is such type of problem and it can be solved by preparing a table in the manner given below.

	L	M	N	O	P	Q
Historical place						
Industrial city						
Hill station						

(2), (3), (4), (5) are negative informations. Therefore as per such informations. We put 'X' (not) mark wherever applicable. As a result the table looks like the one below.

	L	M	N	O	P	Q
Historical place	×	×		×	×	
Industrial city				×		
Hill station	×					

As above table gives definite informations about L, O. L is neither a historical place nor a hill station. So, it must be an industrial city. In the same manner O is neither a historical nor an industrial city. So, O must be a hill station. Hence, we put '✓' mark at the appropriate place which give the table following look:-

	L	M	N	O	P	Q
Historical place	×	×		×	×	
Industrial city	✓			×		
Hill station	×			✓		

Now, as per the condition (6) (L and M are not alike), M can not be an Industrial city. Also M is not a historical place either. Therefore, it is very obvious that M is a hill station. Again, in the given problem there is no negative information about N. Hence, we can assume that N is a hill station as well as a historical place and an industrial city. Combining if these aspects, the following table will be prepared finally.

	L	M	N	O	P	Q
Historical place	×	×	✓	×	×	✓
Industrial city	✓	×	✓	×	✓	✓
Hill station	×	✓	✓	✓	✓	✓

Now, after analysing the given questions we get the following answer:-

Q. (1) (b) Q. (2) (c) Q. (3) (c) Q. (4) (a)
Q. (5) (d)

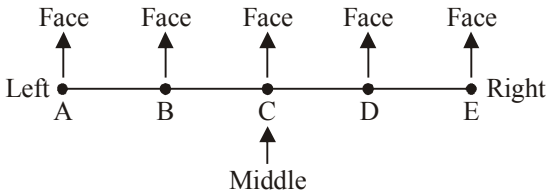
2. Problems Based On Arrangement

In such problems a group of people, objects, etc, may have to be is arranged in a row, or in a circle or any other way. Let us see the example given below:-

LINEAR ARRANGEMENT

One Row Sequence

(A) When direction of face is not clear, then we take ourself as base and then the diagram will be as follows

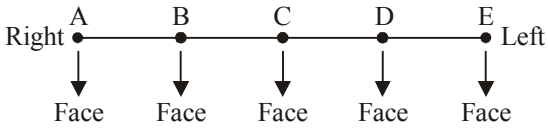


From the above diagram, it is clear that

(i) B, C, D, E are **right** of A but **only** B is the **immediate right** of A.

(ii) D, C, B, A are **left** of E but **only** D is the **immediate left** of E.

(B) When direction of face is towards you, then the diagram will be as follows



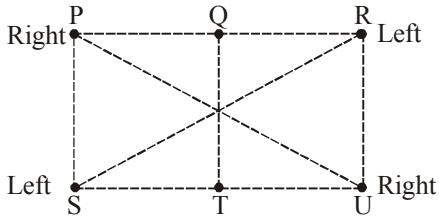
From the above diagram, it is clear that

(iii) B is **immediate left** of A, C is **immediate left** of B; D is **immediate left** of C and E is **immediate left** of D.

(iv) D is **immediate right** of E; C is **immediate right** of D; B is **immediate right** of C; and A is **immediate right** of B.

Two Rows Sequence

Let us see 6 persons seating in two rows



From the above diagram, it is clear that

(i) P is sitting **opposite** S.

(ii) Q is sitting **opposite** T.

(iii) R is sitting **opposite** U.

(iv) P and U are sitting at **diagonally opposite** positions.

(v) S and R are sitting **diagonally opposite** positions.

EXAMPLE **2. Directions (Questions 1 to 5):** Just read the following informations carefully to answer the questions given below it:

Five friends P, Q, R, S, and T are sitting on a bench.

(1) P is sitting next to Q.
(2) R is sitting next to S.
(3) S is not sitting with T.
(4) T is on the last end of the bench.
(5) R is on the 2nd position from the right.
(6) P is on the right of Q and T.
(7) P and R are sitting together.

1. All what position is P sitting?
(a) Between S and R (b) Between S and R
(c) Between T and S (d) Between S and T
(e) Between Q and R

2. Who is sitting in the centre?
(a) P (b) Q (c) R
(d) S (e) T

3. R is sitting between.....
(a) Q and S (b) P and T
(c) S and T (d) P and S
(e) P and Q

4. What is the position of S?
(a) Extreme left (b) Extreme right
(c) Third from left (d) Second from left
(e) None of these

5. What is the position of Q?
(a) 2nd from right (b) Centre
(c) Extreme left (d) 2nd from left
(e) None of these

Now, point to be noted that in arrangement problems the actual information can be classified into 2 categories:-

(a) Definite information

A definite information is one when the place of object/man is definitely mentioned.

(b) Comparative information

In such information the place of object/man is not mentioned definitely but only a comparative position is given. In other words the positions of objects/men are given in comparision to another objects/men.

Now, to solve the problem go as per the following steps:-

Step I Sketch a diagram of empty places

Step II. Fill up as many empty places as possible using all the definite informations.

Step III. With the help of comparative information consider all possibilities and select the possibilities which does not violate any condition.

Now, we can solve the above example :

Here 4th and 5th sentences constitute definite information: Comparative informations are: 1st, 2nd, 6th and 7th sentences while 3rd is a negative information.

Now, start with definite information, sketch the following arrangement:-

T __ __ R __

Now, this is the time to look for the comparative informations that tell about T and R. Such informations are 2nd, 6th and 7th sentences. Take the 7th and the 1st sentence. If P and R are together and also Q and P are together, then P must be between Q and R. Now the arrangement take the form as:-

T Q P R ____

By the virtue of the 2nd sentence:

T Q P R S

Now, look at the given questions and check that you get the following answer:-

Q. (1) (e) Q. (2) (a) Q. (3) (d) Q. (4) (b) Q. (5) (d)

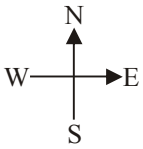
CIRCULAR ARRANGEMENT

Circle is the most important case from the exam point of view. Most of the times Circle kind of statements are there in exams.

From the exam point of view, in most cases they give 8 persons sitting in the circle.

But before solving the important thing is their ' Sitting Position '.

Step 1. Knowing NEWS! N= North , E= East , W=West , S= South

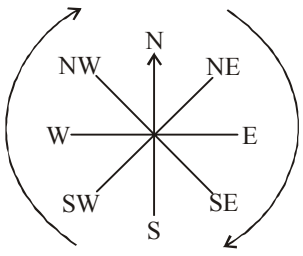


To remember this just remember combination ' North - South ' & ' West - East ' which comes together to each other respectively.

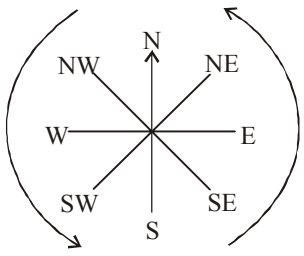
Step 2 : Picking Left & Right .

- Facing Center

Clock wise = Left



Anti - Clock wise = Right



- Facing Outside

If it is mention in the statement that all is facing outside then just do opposite of above like this:

Clock wise = Right & Anti- clock wise = Left

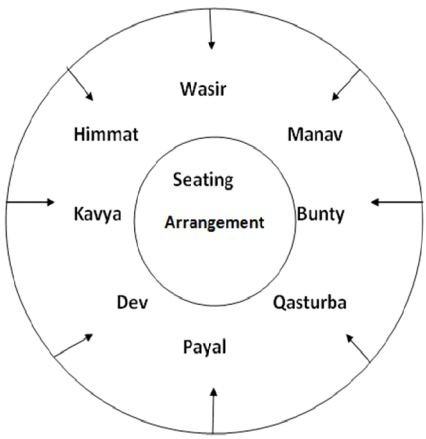
Step 3 : Solving step wise the statement or Following the statement.

EXAMPLE 3. Directions (Qs. 1-5) Study the following information carefully and answer the questions given below.

Bunty, Dev, Manav, Kavya, Payal, Qasturba, Wasir and Himmat are sitting around a circle facing at the centre. Manav is to the immediate right of Bunty who is 4th to the right of Kavya. Payal is 2nd to the left of Bunty and is 4th to the right of Wasir. Qasturba is 2nd to the right of Dev who is 2nd to the right of Himmat.

1. Who is 3rd to the right of Bunty?
   (a) Wasir (b) Manav
   (c) Kavya (d) Himmat
   (e) None of these
2. Which of the following represents the immediate neighbours of D?
   (a) Payal and Qasturba (b) Kavya and Himmat
   (c) Payal and Himmat (d) Kavya and Qasturba
   (e) Payal and Kavya
3. Who is 3rd to the right of Wasir?
   (a) Payal (b) Dev
   (c) Kavya (d) Qasturba
   (e) Data inadequate
4. Who is 2nd to the left of Payal?
   (a) Dev (b) Himmat
   (c) Kavya (d) Data inadequate
   (e) None of these
5. Who is to the immediate left of Bunty?
   (a) Qasturba (b) Payal
   (c) Wasir (d) Data inadequate
   (e) None of these

Sol.



1. (d) 2. (e) 3. (b) 4. (c) 5. (a)

3. Problems Based On Comparision

In such problems comparision of different objects or persons has to be made. Such comparisions are done on the basis of marks, ages heights, etc.

Let us see the following examples:-

EXAMPLE **4. Directions (Qs. 1-5) : Read the informations given below to answer the given questions:**

(1) 7 students A, B, C, D, E, F and G take a series of tests.
(2) No two students obtain the same marks.
(3) G always scores more than A.
(4) A always scores more than B.
(5) Each time either C scores the highest and E gets the least, or alternatively D scores the highest and F or B scores the least.

1. If D is ranked 6th and B is ranked 5th, which of the following can be true?
(a) G is ranked 1st or 4th (b) C is ranked 2nd or 3rd
(c) A is ranked 2nd or 5th (d) F is ranked 3rd or 4th
(e) E is ranked 4th or 5th.

2. If C gets most, G should be ranked not lower than -----
(a) 2nd (b) 3rd (c) 4th
(d) 5th (e) 6th.

3. If C is ranked 2nd and B is ranked 5th, which of the following must be true?
(a) D is ranked 3rd (b) E is ranked 6th
(c) A is ranked 6th (d) G is ranked 4th
(e) F is ranked 6th.

4. If D is ranked 2nd, which of the following can be true?
(a) F gets more than G (b) G gets more than D
(c) A gets more than C (d) A gets more than G
(e) E gets more than B

5. If G is ranked 5th, which of the following must be true?
(a) D scores the highest (b) C is ranked 2nd
(c) E is ranked 3rd (d) B is ranked 4th
(e) F scores the least

Method to Solve

If you give a serious look to the problem you will find that such problems are as same as the arrangement problems. Therefore, we have to go like arrangement problem while solving problems based on comparision.

Solution (Ex. 3)

In this case, we see there is no definite information. Sentence 5 gives a definite information but it is conditional. Still, we draw all the possibilities based on sentence 5.

(1) C _ _ _ _ _ _ E
or, (2) D _ _ _ _ _ _ F
or, (3) D _ _ _ _ _ _ B

We see that the two additional informations (3) and (4) are inadequate to reach a definite conclusion. Hence, keeping these in mind. We move on to the given questions.

1. D is ranked 6th and B is 5th. This does mean that possibilities (2) and (3) are violated. Hence, possibility (1) must be true. Thus, we have:
C _____ B D E
Also by virtue of (3) and (4) we can have only one arrangement for G, A and B which is GAB. Accordingly, there are two possibilities:
C G F A B D E
or, C G A F B D E
∴ Correct answer: (d).

2. Just see the analysis of Q (1)
∴ Correct answer: (c).

3. C is ranked 2nd does mean possibility (1) is false. Therefore, possibilities (2) and (3) remain. Now, B is ranked 5th does mean possibility (3) is false.
Hence, possibility (2) remains:
D C _ _ B _ F
Now, by virtue of (3) and (4), we must have G and A before B in that order. Consequently the 6th place would go to the only letter remaining that is E.
Hence, D C G A B E F
∴ Correct answer: (b).

4. D is ranked 2nd does mean possibilities (2) and (3) are false. Hence possibility (1) is true. Now look at the analysis of Question (1) and you will get the correct answer as: (a).

5. If G is ranked 5th, we can not definitely say which among the three possibilities (1), (2) and (3) are true or false. But sentences (3) and (4) definitely imply that the position of A will be 6th and that of B seventh. Now if B is 7th, it does mean that possibility (3) is true. Hence, we have
D ? ? ? G A B.
∴ Correct answer (a).

4. Problems Based On Blood Relation

Such problems involves analysis of certain blood relations. Let us see the problems given below:-

EXAMPLE **5. (Directions Qs. 1-5) : Read the following information carefully and answer the questions given below:**

There are 6 members in a family. They are M, N, O, P, Q, R are travelling together. N is the son of O but O is not the mother of N. M and O are a married couple. Q is the brother O. P is the daughter of M. R is the brother of N.

1. How many male members are there in the family?
(a) 1 (b) 3 (c) 2
(d) 4 (e) 5

2. Who is the mother of N?
(a) P (b) R (c) Q
(d) M (e) None of these

3. How many children does M have?
(a) 1 (b) 2 (c) 3
(d) 4 (e) None of these

4. Who is the wife of Q?
(a) M (b) R (c) N
(d) Can't be determined (e) None of these

5. Which of the following is a pair of females?
(a) MQ (b) NP (c) PR
(d) MP (e) None of these

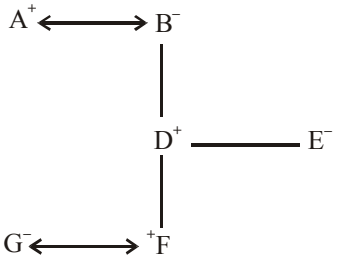
6. How is Q related to P?
(a) Father (b) Brother
(c) Uncle
(d) Can't be determined (e) None of these

To solve such questions, remember the following point:-
Draw a family tree using
(i) Vertical/diagonal lines to represent parent-child relationships
(ii) Single/double horizontal line like $(\leftrightarrow / \Leftrightarrow)$ to represent marriages

(iii) a dashed line (—) for brother and sister relationship

(iv) '+' sign for male and '–' sign for female

For example.



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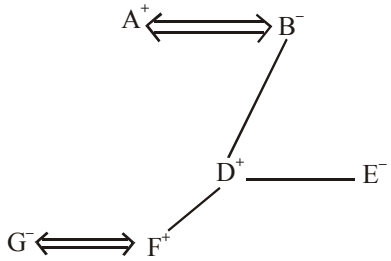

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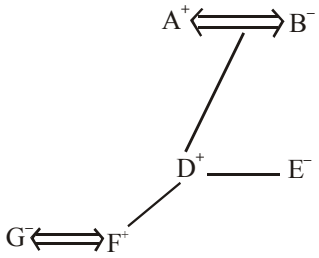


The above diagrams tells us:-

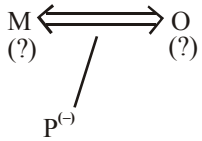
(a) A and B are couple; A is the husband while B is the wife.
(b) D is son of A and B while E is daughter of A and B.
(c) D is the brother of E and E is the sister of D.
(d) D has a son F
(e) F and G are couple; F is the husband and G is the wife.
(f) F is the grandson of A and B.
(g) G is the daughter in law of D.
(h) E is the aunt (Bua) of F
(i) There are 3 males (A, D and F) and 3 females (B, E, G)

Now that you have learnt how to make a family tree. Let us see the actual method of solving the problem.

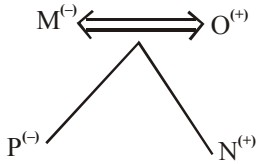
Solution

Here all the sentences are actual information except the first out of these the 2nd and the fifth sentences give information on parent child relationship. We can begin with either of the two. Let us begin with the 6th sentence. Our diagram will be as

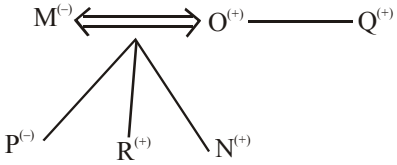
As we do not want to make many diagrams and instead we would prefer to only add to the existing diagsams. Therefore we should look for sentences that talk of M or P. The 3rd sentence talks about M. Hence, we add this information, that M and O are married couple in our diagram.



Now the 2nd sentence talks about O. It says that N is the son of O but O is not the mother of N. Obviously, O must be the father of N. This means O is a male and hence M must be a female. Now our diagram takes the form as following:-



Now, we add the two sentences 'Q is the brother of O' and 'R is the brother of N' and we get the final diagram as below:-



Now, you can read the questions to check your answer:-

Q. (1) d Q. (2) d Q. (3) c Q. (4) d
Q. (5) d Q. (6) c

5. Problems Based On Blood Relations and Profession:

Such problems are very much similar to the problems related to blood relation. What makes it different is the addition of new data:- the professions of family members. You will get the more clear idea about this type of problem. Let us see the example given below:-

EXAMPLE **6. Directions (Qs. 1-5): Read the following information carefully and answer the questions given below it:**

(1) A, B, C, D, E and P are members of a family.
(2) There are two married couples.
(3) B is an engineer and the father of E
(4) P is the grandfather of C and is a lawyer.
(5) D is the grandmother of E and is a housewife.
(6) There is one engineer, one lawyer, one teacher, one housewife and two students in the family.

1. Who is the husband of A?
(a) C (b) E (c) B
(d) D (e) None of these

2. Which of the following are two married couple?
(a) PD, BA (b) PD, BE
(c) PD, CA (d) ED, CP
(e) None of these

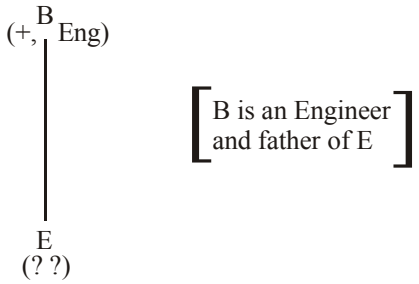
3. Which of the following is definitely a group of male members?
(a) B, P, E (b) P, E
(c) B, P, A (d) B, P
(e) None of these

4. Who is the sister of E?
(a) C (b) D
(c) A (d) Data inadequate
(e) None of these

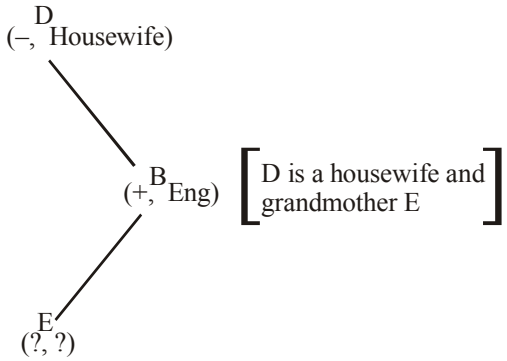
5. What is the profession of A?
(a) Housewife (b) Engineer
(c) Teacher (d) Engineer or Teacher
(e) Housewife or Teacher

Solution

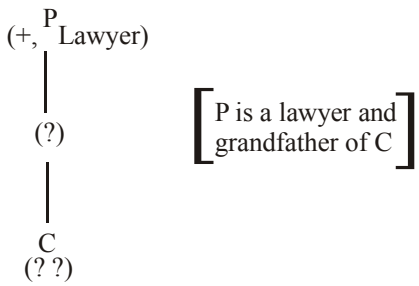
Here, (1), (2), and (6) are useful secondary informations. While (3), (4) and (5) are the actual informations. We start with the 3rd sentence because it mentions a parent. Child relationship its diagram can be made as the following:-



Now, we move on to another sentence that involves either B or E. You see that the 5th sentence gives some information about E. It says that D is the grandmother E. Point to be noted that if D is the grandmother of E, then the son of D must be father of E and hence B is the son of D. Now, the diagram takes the following form.

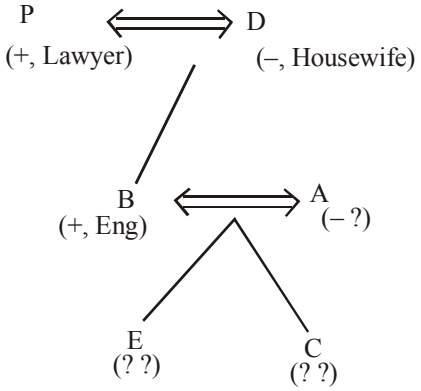


Now, the 4th sentence has the remaining information and diagram for it is given below:-



Now, we see that we have ended up with two different component. Then how to resolve this deadlock? The answer is simple: - to resolve it we make use of the given useful secondary information (USI).

"There are two married couple in the family." Clearly, the two possible pairs are of grandfather, grandmother and father, mother. Therefore, we combine the two diagrams into the following way.



Point to be noted that the professions of A, E and C are yet unknown. However, with reasonable justification, we may assume that the mother (A) should be the teacher and the two children E and C should be students. But this conclusion can be challenged and has no reason at all.

Apart from that the sexes of E and C can not be determined.

Now, read the question and check your answer one by one:-

Q. (1) c Q. (2) a Q. (3) d
Q. (4) d Q. (5) c

6. Problems Based On Conditional Selection:

In this type of problems, a group of objects/persons has to be selected from a given larger group, as per the given restrictions. You will get the better idea of such type of problem from the problem given below:-

EXAMPLE **7. Directions (Qs. 1-5) : Study the following information carefully and answer the questions given below:-**

From, amongst 6 boys J, K, L, M, N, and O and 5 girls P, Q, R, S and T, a team of 6 is to be selected under the following conditions:-

(i) J and M have to be together.
(ii) L can not go with S.
(iii) S and T have to be together.
(iv) K can not be teamed with N.
(v) M cannot go with P.
(vi) K and R have to be together.
(vii) L and Q have to be together.

1. If there be 5 boys in the team, the lone girl member is ------
(a) P (b) Q (c) R
(d) S (e) None of these

2. If including R, the team has three girls, the members other than R are ------
(a) K L O P Q (b) JMNST
(c) JMKST (d) KORST
(e) None of these

3. If, the team including L consists of 4 boys the members of the team other than L are ------
(a) JMNPQ (b) JKMQR
(c) MNOJQ (d) KNORQ
(e) None of these

4. If 4 members including N, have to be boys, the members other than N are ------
(a) JKLQR (b) JMOST
(c) KLOQR (d) JLMOQ
(e) None of these.

5. If 4 members have to girls, the members of the team are ----
   (a) KLPQRS (b) KOPRST
   (c) KLQRST (d) KLPQRT
   (e) None of these

Solution

Solving problems like example 7 is very easy. Make the group of all the pairs that have to be together on one side and the pairs that must not be together on the other side. Next, read each of the questions and treat that as an additional information. Finally analyse the possibilities and choose the possibilities that satisfies all the conditions. Let us see the process below:-

1stly, we can summarise the conditions in the following way:-

J, M	S, T
(+)(+)	(−)(−)
K, R	L, Q
(+)(−1)	(+)(−)

→ Group 'must be together'.

L, S,	K, N,	M, P
(+) (−)	(+) (+)	(+) (− 1)

→ Group never be together'

Now we move on to questions one by one.

1. Here, number of boys are 5. We see than K and N can never be together. Therefore, there are only two ways of selecting 5 boys:- JKLMO and JNLMO. But the possiblity is not possible because if K would go then R should also go, and if L goes than Q should also go. Hence, JNLMO is the only possibility in which L's friend Q would be the lone girl member.

   ∴ Correct answer choice is (b).

2. There are three girls including P. P is there, so M must not be there. If M is not there, J would not be there. So two boys J and M are eliminated. Since, the team should have only 6 members, hence there should be three boys. Two boys J and M are eliminated. Therefore, the possibilities of selecting three boys are :- KLN, KLO, KNO, LNO. But K and N can't be together. Hence the remaining possibilities are KLO and LNO. Now, K must be with R and L must be with Q. Therefore, we have PKRLQO and PLQNO. To the 2nd possibility we need to add a girl. We can't add R since R can't go without K. We can't add T since T can't go withouts. Conversely, we can't add S either. Hence, this possibility is also eliminated. This, the only possible choice remains PKRLQO.

   ∴ Correct answer choice is (a).

Quicker method:

Start with the answer choices. Choice (b) and choice (c) have M in them. M can't go as P is there. Choice (d) is not correct as it has more than three girls including P. Hence, the correct answer choice must be either (a) or (c). But on verifying we see that a is indeed the correct choice as it does not violate any restriction.

∴ Correct answer choice is (a).

3. There are 4 boys including L. So there must be two girls. Now if L is present, S can't go and if S can't go, T won't go. Hence, three girls remain:- P; Q and R out of these, two can be selected in the ways given below:-

   PQ, PR, and QR.

   Now, if P is selected, M can't go and if M can't go, J will not go. In such case the team would have to include K and N as 4 boys hence to be selected. But K and N can't be together. This means that P should not be selected. Therefore, the only possibility of selecting two girls is QR. But R means the necessary inclusion of K, which in turn means necessary inclusion of N. Hence, the possible combination is LKQR. To this we should add two boys out of J, M and O. The only possibility is adding J and M as neither of these would go without the other. Hence, the team is JMLKQR.

   ∴ Correct answer choice is (b).

Quicker method

Choice (a) is incorrect as it has M and P together. Choice (c) is incorrect as it has only one girl. Choice (d) is incorrect as it has K and N together. Hence, two choices (b) and (e) remain. On verifying we see that (b) is the correct answer choice.

4. Inclusion of N ⇒ Exclusion of k ⇒ Exclusion R. Four boys does mean there should be two girls. How do you select 2 girls out of P, Q, S and T if S and T have always to be together? The only two possible way are:- P, Q, and S, T. If we choose P we can't select M, and hence we can't select J either. This means the exclusion of J and M in addition to that of K. Since, this is not possible in order to have four boys, we must not select P. Hence, we select S.T. Now, selecting S means excluding L. Hence, K and L are excluded. The team would be: - JMNOST

   ∴ Correct answer choice is (b).

EXERCISE

Directions (Qs. 1-5): Study the following information carefully and answer the questions given below:
A, B, C, D, E, F and G are seven persons who travel to office everyday by a particular train which stops at five stations I, II, III, IV and V respectively after it leaves base station.
(1) Three among them get in the train at the base station.
(2) D gets down at the next station at which F gets down.
(3) B does not get down either with A or E.
(4) G alone gets in at station III and gets down with C after having passed one station.
(5) A travels between only two stations and gets down at station V.
(6) None of them gets in at station II.
(7) C gets in with F but does not get in with either B or D.
(8) E gets in with two others and gets down alone after D.
(9) B and D work in the same office and they get down together at station III.
(10) None of them gets down at station I.

1. At which station does E get down?
(a) # II (b) # III
(c) # IV (d) Data inadequate
(e) None of these

2. At which station do C and F get in?
(a) # I (b) # II
(c) # III (d) Data inadequate
(e) None of these

3. At which of the following stations do B and D get in?
(a) # I (b) Base station
(c) # III (d) Data inadequate
(e) None of these

4. After how many stations does E get down?
(a) One (b) Two
(c) Three (d) Four
(e) Five

5. E gets down after how many stations at which F gets down?
(a) Next station (b) Two
(c) Three (d) Four
(e) None of these

Directions (Qs. 6-10): Study the following information carefully and answer the questions given below:
P, Q, R, S, T, V and *W* are travelling in three different vehicles. There are at least two passengers in each vehicle– I, II & III and only one of them is a male. There are two engineers, two doctors and three teachers among them.
(i) *R* is a lady doctor and she does not travel with the pair of sisters, *P* and *V*.
(ii) *Q*, a male engineer, travels with only *W*, a teacher in vehicle I.
(iii) *S* is a male doctor.
(iv) Two persons belonging to the same profession do not travel in the same vehicle.
(v) *P* is no an engineer and travels in vehicle II.

6. What is *V*'s profession?
(a) Engineer (b) Teacher
(c) Doctor (d) Data inadequate
(e) None of these

7. In which vehicle does *R* travel?
(a) I (b) II
(c) III (d) II or III
(e) None of these

8. Which of the following represents the three teachers?
(a) WTV (b) WTP
(c) WTV or WTP (d) Data inadequate
(e) None of these

9. Which of the following is not correct?
(a) T-Male-Teacher (b) Q-Male-Engineer
(c) P-Female-Teacher (d) V-Female-Teacher
(e) W-Female-Teacher

10. How many lady members are there among them?
(a) Three (b) Four
(c) Three or Four (d) Data inadequate
(e) None of these

Directions (Qs. 11-15): Study the following information and answer these questions :
(A) P, Q, R, S, T, U and V are sitting in a circle facing the centre.
(B) S, who is second to the right of R, is not to the immediate right of V.
(C) U is not between V and T.
(D) P is between R and Q.

11. Which of the following is **wrong?**
(I) T is to the immediate left of R.
(II) Q is to the immediate left of U.
(III) U, S and T are in a sequence, one after the other.
(a) Only I (b) Only II
(c) Only III (d) Only I and II
(e) All I, II and III

12. Which of the following are the two pairs of adjacent is members?
(a) VS and TR (b) SU and PQ
(c) PR and TQ (d) VU and QR
(e) None of these

13. What is the position of T?
(a) To the immediate left of R
(b) Second to the left of P
(c) Fourth to the left of U
(d) Second to the left of V
(e) None of these

14. Which of the following is **correct?**
(I) V is third to the left of R.
(II) U is between S and V
(III) Q is to the immediate left of P.
(a) Only I (b) Only II
(c) Only III (d) Only II and III
(e) None of these

15. If Q and R interchange places so as T and V, then
(a) S is third to the right of R
(b) T is second to the left of R
(c) Q is fourth to the right of T
(d) V is third to the right of U
(e) None of these

Directions (Qs. 16-20): Study the following information carefully and answer the questions given below :
Ten persons A, B, C, D, E, F, G, H, I and J, are sitting in two rows with five persons in each row in such a way that one person in the first row sites exactly opposite and facing a person in the second row. Members of the first row are facing North.
B sits in the first row to the immediate right of H who sits exactly opposite of D. C is at the extreme end of second row and is second to the left of D. A is to the immediate right of D and exactly opposite to F. G sits exactly opposite to E who is at one of the ends of the second row. J does not sit at the end.

16. Who is second to the left of B ?
(a) I (b) G
(c) H (d) F
(e) None of these

17. Which of the following pairs of persons are sitting at the two ends of the first row ?
(a) GJ (b) EI
(c) GI (d) EJ
(e) None of these

18. Who sits exactly opposite to B ?
(a) J (b) I
(c) G (d) A
(e) None of these

19. Who is third to the left of E ?
(a) D (b) I
(c) H (d) C
(e) None of these

20. A sits between which of the following persons ?
(a) DJ (b) ED
(c) FB (d) BI
(e) None of these

Directions (Qs. 21-25) : Studay the following information and answer the questions given below.
Eight people E, F, G, H, J, K, L and M are sitting around a circular table facing the centre, Each of them is of a different profession Chartered Accountant, Columnist, Doctor, Enginneer, Financial Analyst, Lawyer, Professor and Scientist but not necessarily in the same order. F is sitting second to the left of K. The Scientist is an immediate neighbour of K. There are only three people between the Scientist and E. Only one person sits between the Engineer and E. The Columnist is to the immediate right of the Engineer. M is second to the right of K. H is the Scientist. G and J are immediate neighbours of each other. Neither G nor J is an Engineer. The Financial Analyst is to the immediate left of F. The Lawyer is second to the right of the Columnist. The Professor is an immediate neighbour of the Engineer. G is second to the right of the Chartered Accountant.

21. Who is sitting second to the right of E ?
(a) The Lawyer (b) G
(c) The Engineer (d) F
(e) K

22. Who amongst the following is the Professor ?
(a) F (b) L
(c) M (d) K
(e) J

23. Four of the following five are alike in a certain way based on the given arrangment and hence froma group. Which of the following does not belong to that group ?
(a) Chartered Accountant-H
(b) M-Doctor
(c) J-Engineer
(d) Financial Analyst-L
(e) Lawyer-K

24. What is the position of L with respect to the Scientist ?
(a) Third to the left (b) Second to the right
(c) Second to the left (d) Third to the right
(e) Immediate right

25. Which of the following statements is true according to the given arrangement ?
(a) The Lawyer is second to the left of the Doctor
(b) E is an immediate neighbour of the Financial Analyst
(c) H sits exactly between F and the Financial Analyst
(d) Only four people sit between the Columnist and F
(e) All of the given statements are true.

Directions (Qs. 26- 30): Each of these questions are based on the information given other.

1. 8 persons E, F, G, H, I, J, K and L are seated around a square table - two on each side.
2. There are 3 ladies who are not seated next to each other.
3. J is between L and F.
4. G is between I and F.
5. H, a lady member is second to the left of J.
6. F, a male member is seated opposite to E, a lady member.
7. There is a lady member between F and I

26. Who among the following is to the immediate left of F ?
(a) G (b) I
(c) J (d) H
(e) None of these

27. What is true about J and K ?
(a) J is male, K is female (b) J is female, K is male
(c) Both are female (d) Both are male
(e) None of these

28. How many persons are seated between K and F ?
(a) 1 (b) 2
(c) 3 (d) 4
(e) None of these

29. Who among the following are three lady members ?
(a) E, H and J (b) E, F and G
(c) E, H and G (d) C, H and J
(e) None of these

30. Who among the following is seated between E and H ?
(a) F (b) I
(c) K (d) Cannot be determined
(e) None of these

Directions (Qs. 31-35) : Study the following information carefully and answer the questions given below:

(i) Six students *P, Q, R, S, T* and *U* are in different branches of Engineering, viz. civil, mechanical *M* chemical, electrical, metallurgy and electronics but not necessarily in the same order.

(ii) Each of them is a resident of a different city viz Mumbai, Calcutta, Chennai, Delhi, Hyderabad and Bangalore. *R* is the resident of Delhi but he is not in chemical or electrical. *T*, who is in mechanical, is not the resident of Mumbai or Hyderabad. *Q* is from Calcutta and he is in electrical. The student from Chennai is in electronics and *S* is from Mumbai. *P* is in metallurgy.

31. Which of the following is not the correct combination of student and subject?
(a) P-metallurgy (b) Q-electrical
(c) U-electronics (d) S-civil
(e) All are correct

32. Which student is from Chennai?
(a) R (b) U
(c) S (d) T
(e) None of these

33. *P* is from which city?
(a) Chennai (b) Calcutta
(c) Hyderabad (d) Data inadequate
(e) None of these

34. Which student is from Bangalore'?
(a) T (b) Q
(c) S (d) T or P
(e) None of these

35. *R* is studying which subject?
(a) Electronics (b) Mechanical
(c) Metallurgy (d) Data inadequate
(e) None of these

Directions (Qs. 36-40): Study the following information carefully and answer the questions given below:

(i) M, N, P, Q, S and T are six members of a group in which there are three female members. Females work in three departments —Accounts, Administration and Personnel — and sit on three different floors — Ist, IInd and IIIrd. Persons working in the same department are not on the same floor. On each floor two persons work.

(i) No two females work in the same department or on the same floor. N and S work in the same department but not in Personnel. Q works in administration. S and M are on the Ist and IIIrd floors respectively and work in the same department. Q, a female, does not work on IInd floor. P, a male, work on Ist floor.

36. Which of the following groups of persons are females?
(a) SQT (b) QMT
(c) QPT (d) Data inadequate
(e) None of these

37. Which of the following pairs of persons work in Administration?
(a) QP (b) QN
(c) SP (d) Data inadequate
(e) None of these

38. T works in which department?
(a) Accounts (b) Administration
(c) Personnel (d) Accounts or Personnel
(e) None of these

39. Which of the following pairs works on IInd floor?
(a) PT (b) SM
(c) QN (d) QT
(e) None of these

40. If T is transferred to Accounts and S is transferred to Administration, who is to be transferred to Personnel to maintain the original distribution of females on each floor?
(a) P (b) Q
(c) N (d) Data inadequate
(e) None of these

Directions (Qs. 41-45) : Study the following information carefully and answer the questions given below:

Seven specialist doctors B, M, K, P, D, F and H visit a polyclinic on four days — Tuesday, Wednesday, Friday and Saturday — in a week. At least one doctor but not more than two doctors visits the polyclinic on each of these days. Each of them is specialist in different fields — ENT, Orthopaedics, Paediatrics, Neurology, Ophthalmology, Radiology and Oncology.

(i) P visits on Friday with Radiologist.

(ii) The Paediatrician does not visit on Saturday nor with D and H.

(iii) The Oncologist F visits alone on Tuesday.

(iv) M visits on Wednesday and he is not Paediatrician.

(v) K visits on Wednesday. H is not Radiologist.

(vi) The Paediatrician visits with the ENT specialist.

(vii) The Neurologist visits on Friday.

(viii) B is neither Orthopaedician nor Radiologist.

41. What is the speciality of B?
(a) Ophthalmology (b) ENT
(c) Paediatrics (d) Data inadequate
(e) None of these

42. On which day of the week does D visit?
(a) Wednesday (b) Saturday
(c) Wednesday or Saturday (d) Friday
(e) None of these

43. Who among them visits the polyclinic along with B ?
(a) None (b) H
(c) D (d) P
(e) Either H or P

44. On which of the following days do the specialists in Orthopaedics and Ophthalmology visit ?
(a) Wednesday (b) Friday
(c) Saturday (d) Data inadequate
(e) None of these

45. What is P's profession?
(a) Paediatriccian (b) ENT
(c) Ophthalmologist (d) Data inadequate
(e) None of these

Directions (Qs. 46-49) : Read the following information carefully and answer the questions given below :

(a) An examiantion board has organised examination for ten subjects viz A, B, C, D, E, F, G, H, I and J on six days of the week with a holiday on Sunday, not having more than two papers on any of the days.

(b) Exam begins on Wednesday with subject F.

(c) D is accompained by some other subject but not on Thursday. A and G are on the same day immediately after holiday.

(d) There is only one paper on last day and Saturday. B is immediately followed by H, which is immediately followed by I.

(e) C is on Saturday. H is not on the same day as J.

46. Examination for which of the following pairs of subjects is on Thursday?
(a) HE (b) DB
(c) FD (d) Data inadequate
(e) None of these

47. Examination for which of the following subjects is on the next day of D?
(a) B (b) C
(c) I (d) H
(e) None of these

48. Examination for which of the following subjects is on the last day?
(a) B (b) E
(c) J (d) Data inadequate
(e) None of these

49. Examination for subject F is on the same day as which of the following subjects?
(a) E (b) D
(c) I (d) B
(e) None of these

Directions (Qs. 50-53): Read the following information carefully and answer the questions given below.

A, B, C, D, E, F and G are seven students in a class. They are sitting on three benches I, II and III in such way that there is at least two of them on each bench and there is at least one girl on each bench. C, a girl student, does not sit with A, E and D. F, a boy student, sits with only B. A sits with his best friend on bench I. G sits on bench III. E is brother of C.

50. How many girl students are there?
(a) 3 (b) 4
(c) 3 or 4 (d) Data inadequate
(e) None of these

51. Who sits with C?
(a) B (b) G
(c) D (d) E
(e) None of these

52. Which of the following is a group of girls?
(a) BAC (b) BFC
(c) CDF (d) BCD
(e) None of these

53. On which bench do three students sit?
(a) II (b) III
(c) I (d) I or II
(e) None of these

Directions (Qs. 54-56): Read the following information carefully and answer the questions given below:

Six persons *A, B, C, D, E* and *F* took up a job with a firm in a week from Monday to Saturday. Each of them joined for different posts on different days. The post were of – Clerk, Officer, Technician, Manager, Supervisor, and Sales Executive, though not respectively.

F joined as a Manager on the first day. *B* joined as a Supervisor but neither on Wednesday nor Friday. *D* joined as a Technician on Thursday. Officer joined the firm on Wednesday. *E* joined as a Clerk on Tuesday. *A* joined as a Sales Executive.

54. Who joined the firm on Wednesday?
(a) B (b) C
(c) B or C (d) Data inadequate
(e) None of these

55. Who was the last person to join the firm?
(a) E (b) F
(c) A (d) B
(e) None of these

56. On which of the following days did the Sales Executive join?
(a) Tuesday (b) Thursday
(c) Saturday (d) Wednesday
(e) None of these

Directions (Qs. 57-60): Read the following information carefully to answer the questions given below:

(i) There are six different books on different subjects *P, Q, R, S, T* and *U*. These books are kept one above the other on a shelf. These books belong to six different persons - *A, B, C, D, E* and *F*. It is not necessary that the orders of these books and persons are the same.

(ii) Only book of subject *Q* is kept between the books of subject *P* and *T* and only book of subject *S* is kept between books of subject *P* and *U*. The book of subject *R* is immediately above the book of subject *T*.

(iii) *C*'s book is kept on the top. A does not have books on subjects *T* and *S*. The book on subject *P* belongs to *F*. The book on subject *U* belongs neither to *B* nor to *A*. *D*'s book is kept at the bottom.

57. The book on which of the following subjects belongs to *A*?
(a) Q (b) S
(c) P (d) T
(e) None of these

58. Who among the following possesses the book on subject *T*?
(a) B (b) E
(c) C or E (d) B or E
(e) None of these

59. Who owns the book on subject U?
(a) B (b) E
(c) D (d) C
(e) None of these

60. The book on which of the following subjects is kept on the top?
(a) T (b) R
(c) U (d) Data inadequate
(e) None of these

Directions (Qs. 61-63): Read the following information carefully and answer the questions given below:

(I) Maths, Physics, Chemistry, Botany, Zoology and Statistics are six subjects on which a series of lectures are to be organised on a day, though their order is not necessarily the same.

(II) The lectures on Zoology and Chemistry are to be organised either in the beginning or at the end:

(III) The lecture on Physics is to be organised immediately before that on Botany. The lecture on Statistics is to be organised immediately after that on Botany:

(IV) There will be a small break after the lecture on Physics and each lecture will be of 45 minutes' duration.

(V) There will be only two lectures before Physics and the lecture on Chemistry is to be organised immediately before that on Maths.

61. In the series of lectures, the lecture on which of the following subjects is to be organised immediately before the last lecture?
(a) Botany
(b) Zoology
(c) Either Zoology or Botany
(d) Data inadequate
(e) None of these

62. Which of the above given statements is not necessary to answer the questions?
(a) V (b) IV
(c) III (d) II
(e) None of these

63. Which of the lectures is to be organised immediately before the physics lecture?
(a) Maths (b) Zoology
(c) Chemistry (d) Data indadquate
(e) None of these

Directions (Qs. 64-66) : Read the following in formation carefully and answer the questions given below.

(i) Five students Sujit, Randhir, Neena, Mihir and Vinay have total five books on subjects Physics, Chemistry, Maths, Biology and English written by authors Gupta, Khanna, Harish, D'Souza and Edwin. Each student has only one book on one of the five subjects.

(ii) Gupta is the author of Physics book, which is not owned by Vinay or Sujit.

(iii) Mihir owns the book written by Edwin.

(iv) Neena owns Maths book. Vinay has English book, which is not written by Khanna. Biology book is written by D'Souza.

64. Which of the following is the correct combination of subject, student and author?
(a) Maths-Neena-Harish (b) Physics-Mihir-Gupta
(c) English-Vinay-Edwin (d) Biology-Sujit-D'Souza
(e) None of these

65. Who is the author of Chemistry book?
(a) Harish only (b) Edwin only
(c) Khanna or Harish (d) Edwin or Khanna
(e) Data inadequate

66. Who is the owner of the book written by Harish?
(a) Vinay (b) Sujit
(c) Randhir (d) Data inadequate
(e) None of these

Directions (Qs. 67-70) : Read the following information carefully to answer these questions.

(i) In a family of six members A, B, C, D, E and F each one plays one game out of the six games Chess, Carrom, Table tennis, Badminton, Bridge and Cricket.

(ii) Two are married couples.

(iii) B, who plays Carrom, is daughter-in-law of E.

(iv) A is father of D, the Table-tennis player, and D is father of C, who plays Cricket

(v) F is brother of C.

(vi) Chess is not played by a female member.

(vii) E's husband plays Badminton.

67. Who among them plays Bridge?
(a) E (b) F
(c) A (d) Data inadequate
(e) None of these

68. How is F related to A?
(a) Granddaughter (b) Grandson
(c) Son (d) Daughter
(e) None of these

69. Who is husband of B?
(a) Data inadequate (b) A
(c) C (d) D
(e) F

70. How many male members are there in the family?
(a) Two only (b) Three only
(c) Four only (d) Data inadequate
(e) None of these

Directions (Qs. 71 - 74): Read the following information carefully and answer the questions given below :

(i) There are five types of cards viz. A, B, C, D and E. There are three cards of each type. These are to be inserted in envelopes of three colours- red, yellow and brown. There are five envelopes of each colour.

(ii) B, D and E type cards are to be inserted in red envelopes; A, B and C type cards are to be inserted in yellow envelopes; and C, D and E type cards are to be inserted in brown envelopes.

(iii) Two cards each of B and D type are inserted in red envelopes.

71. How many cards of E type are inserted in brown envelopes?
(a) Nil (b) One
(c) Two (d) Three
(e) Data inadequate

72. Which of the following combinations of the type of cards and the number of cards is **definitely correct** in respect of yellow-coloured envelopes?
(a) A-2, B-1, C-2 (b) B-1, C-2, D-2
(c) A-2, E-1, D-2 (d) A-3, B-1, C-1
(e) None of these

73. Which of the following combinations of types of cards and the number of cards and colour of envelope is **definitely correct**?
(a) C-2, D-1, E-2, Brown (b) C-l, D-2, E-2, Brown
(c) B-2, D-2, A-1, Red (d) A-2, B-2, C-1, Yellow
(e) None of these

74. Which of the following combinations of colour of the envelope and the number of cards is **definitely correct** in respect of E type cards?
(a) Red-2, Brown-1 (b) Red-1, Yellow-2
(c) Red-2, Yellow-1 (d) Yellow-1, Brown-2
(e) None of these

Directions (Qs. 75-78): Study the following information and answer the questions given below:
(i) 6 picture cards A, B, C, D, E and F are printed in six different-coloured inks / blue, red, green, grey, yellow and brown / and are arranged from left to right (not necessarily in the same order and colour as given).
(ii) The pictures were of King, Princess, Queen, Palace, Joker and Prince.
(iii) The picture of palace was in blue colour but it was not printed on card D.
(iv) Card 'A', which was bearing Queen's picture printed in brown ink, was at the extreme right.
(v) The picture of princess was neither on card D nor E and was not printed in either green or yellow ink card 'C' had picture of King printed in 'grey' ink and it was fifth from right and next to card B having picture of prince.

75. If the Princess's card is between the cards of the palace and prince, then at what number the Joker's card is placed from left?
(a) First (b) Fourth
(c) Fifth (d) Second
(e) None of these

76. Which of the following combinations of card and colour is TRUE for picture of princess?
(a) E-Yellow (b) F-Red
(c) B-Green (d) Data inadequate
(e) None of these

77. In which colour was the picture of Joker printed?
(a) Data inadequate (b) Yellow
(c) Red (d) Green
(e) None of these

78. Picture of palace was printed on which of the following cards?
(a) E (b) F
(c) D (d) Either D or E
(e) None of these

Directions (Qs. 79-80): After a cricket series, a panel judged 5 players / Pervez, Jatin, Robin, Dinkar and Rahul and gave them ranking for batting and bowling. The ranking was in descending order. Rahul, who was ranked first in batting, was last in bowling. Robin had same ranking in both and was just above Rahul in bowling. In batting, Pervez was just above Dinkar but in bowling he was in the middle after Jatin.

79. Who was ranked first as bowler?
(a) Jatin (b) Rahul
(c) Robin (d) Data inadequate
(e) None of these

80. Who was ranked fifth in batting?
(a) Dinkar (b) Jatin
(c) Robin (d) Data inadequate
(e) None of these

Directions (Qs. 81 - 84): Read the following information and answer the given questions :
(i) Six friends Ramesh, Dinesh, Lokesh, Nilesh, Shailesh and Hitesh work in different companies, namely 'P', 'Q', 'R', 'S', 'T' and 'U', and each one wears company-sponsored different coloured tie, i.e. Blue, Green, Pink, Yellow, Purple and Red, though not necessarily in the same order.
(ii) The one wearing Blue tie works in Company 'S' and the one wearing Green tie works in Company 'P'.
(iii) Hitesh does not work in Company 'R' or 'T'.
(iv) Ramesh wears Pink tie and works in Company 'Q'.
(v) Nilesh does not work in Company 'T' and purple colour tie is not sponsored by Company 'R'.
(vi) Shailesh works in company 'U' and neither Nilesh nor Dinesh works in company 'S'.
(vii) Company 'T' does not sponsor Purple or Yellow coloured tie and Lokesh works in company P.

81. Which colour tie is sponsored by Company 'R'?
(a) It can not be ascertained
(b) Blue (c) Green
(d) Pink (e) None of these

82. Which of the following "colour of tie-company-person" combinations is correct?
(a) Green-R-Nilesh (b) Blue-S-Lokesh
(c) Red-T-Dinesh (d) Yellow-R-Shailesh
(e) None of these

83. Which of the following is true?
(a) Company 'U' sponsors Green tie.
(b) Shailesh wears Red tie.
(c) Nilesh works in Company 'T'.
(d) Red colour is sponsored by Company 'T'.
(e) None of these

84. Which of the following sequence of companies represents Ramesh, Dinesh, Lokesh, Nilesh, Shailesh and Hitesh in the same order?
(a) Q, P, T, R, U, S (b) Q, T, P, R, U, S
(c) Q, P, T, S, U, R (d) Q, T, S, U, R, P
(e) None of these

Directions (Qs. 85-87): Read the following information carefully and answer the questions given below:
(i) A, B, C, D, E, F, G and H are standing in a row facing North.
(ii) B is not neighbour of G.
(iii) F is to the immediate right of G and neighbour of E.
(iv) G is not at the extreme end.
(v) A is sixth to the left of E.
(vi) H is sixth to the right of C.

85. Who among the following are neighbours?
(a) AB (b) CG (c) FH (d) CA
(e) None of these

86. Which one among the following defines the position of D?
(a) Fourth to the right of H (b) Third to the right of A
(c) Neighbour of B and F (d) To the immediate left of B
(e) None of these

87. Which of the following is true?
(a) C is to the immediate left of A
(b) D is neighbour of B and F
(c) G is to the immediate right of D
(d) A and E are at the extreme ends
(e) None of these

Directions (Qs. 88-90): Study the following information carefully and answer the questions given below:

(i) Five courses A, B, C, D and E each of one month duration are to be taught from January to May one after the other though not necessarily in the same order by lecturers P, Q, R, S and T.
(ii) 'P' teaches course 'B' but not in the month of April or May.
(iii) 'Q' teaches course 'A' in the month of March.
(iv) 'R' teaches in the month of January but does not teach course 'C' or 'D'.

88. Which course is taught by 'S'?
(a) C (b) E
(c) Either C or D (d) D
(e) None of these

89. Which lecturer's course immediately follows after course 'B'?
(a) Q (b) P
(c) S (d) T
(e) None of these

90. Which course is taught in the month of January?
(a) C (b) D
(c) E (d) Data inadequate
(e) None of these

Directions (Qs. 91-93) : Read the following information carefully to answer the questions given below:

The annual gathering of a school was organised on a day in the morning hours. Six different items, viz. drama, singing, mimicry, speech, story-telling and dance, are to be performed by six children A, B, C, D, E and F not necessarily in the same order. The programme begins with song not sung by B and ends with dance. C performs mimicry immediately after speech. E performs drama just before dance. D or F is not available for the last performance. Speech is not given by A. An interval of 30 minutes is given immediately after mimicry with three more items remaining to be performed. D performs immediately after interval.

91. Which item is performed by F?
(a) Drama (b) Song
(c) Speech (d) Story-telling
(e) None of these

92. Who performed dance?
(a) A (b) B
(c) F (d) Data inadequate
(e) None of these

93. Who was the first performer?
(a) A (b) B
(c) C (d) Data inadequate
(e) None of these

Directions (Qs. 94-98) : Study the following information to answer the given questions :

(a) Six plays are to be organized from Monday to Sunday - One play each day with one day when there is no play. 'No play' day is not Monday or Sunday.
(b) The plays are held in sets of 3 plays each in such a way that plays are held without any break i.e. 3 plays are held in such a way, that there is no 'No play' day between them but immediately before this set or immediately after this set it is 'No play' day.
(c) Play Z is held on 26th and play X was held on 31st of the same month.
(d) Play B was not held immediately after play A (but was held after A, not necessarily immediately before Q.
(e) All the six plays were held in the same month.

94. Which play was organized on Monday ?
(a) Z (b) M
(c) Q (d) Can't be determined
(e) None of these

95. Which day was play Z organized ?
(a) Tuesday (b) Monday
(c) Wednesday (d) Can't be determined
(e) None of these

96. Which date was a 'No play' day ?
(a) 26th (b) 28th
(c) 29th (d) Can't be determined
(e) None of these

97. Which of the following is true ?
(a) Play M was organized on Thursday
(b) Play Q was organized in the Middle of the week
(c) There was a gap after 2 plays and then 4 plays were organized
(d) First play was organized on the 25th
(e) Play B was held on Friday

98. Which day was play Q organized ?
(a) Friday (b) Wednesday
(c) Saturday (d) Can't be determined
(e) None of these

Directions (Qs. 99-105): Each of these questions are based on the information given below:

P, Q, R, S, W, X, Y, Z are sitting around a circle facing centre but not necessarily in the same order. The husband of Z is sitting second to the right of Q who is sitting between two males. X sits second to the left of the daughter of S. X is the sister of Y. X is not an immediate neighbour of Z's husband. Only one person sits between P and X. P is the father of Y. S who is brother of Z sits to the immediate left of his mother. Only one person sits between Z's mother and W. Only one person sits between Z and Y. Y is mother of R. Y is not an immediate neighbour of W.

99. Which of following is true with respect to the given seating arrangement?
(a) R is the cousin of W
(b) Z and Z's husband are immediate neighbour of each other.
(c) No female is an immediate neighbour of R.
(d) Z sits third to the left of her daughter.
(e) Q is the mother of Z.

100. What is the position of P with respect to his grandchild?
(a) immediate right (b) third to the right
(c) third to the left (d) Second to the right
(e) fourth to the right

101. Four of the following five are alike in a certain way. Which one does not belong to that group?
(a) X (b) R
(c) W (d) Z
(e) Y

102. What is position of P with respect to his mother-in-law?
(a) Immediate right (b) third to the right
(c) third to the left (d) second to the right
(e) None of these

103. How many people sits between Y and her uncle?
(a) One (b) Two
(c) Three (d) Four
(e) Five

104. Who amongst the following is S's daughter?
(a) Q (b) R
(c) W (d) Y
(e) Z

105. Who sits to the immediate left of R?
(a) X's grandmother (b) Y's son
(c) S's mother-in-law (d) P
(e) Y

Directions (Qs. 106-112) : Study the following information and answer the questions given below:

Eight friends-A, B, C, D, E, F, G and H-are sitting around a circular table not necessarily in the same order. Three of them are facing outward while five are facing towards the centre. There are equal number of males and females in the group. C is facing the centre. E is sitting third to the right of C. F is sitting third to the left of E. Three persons are sitting between F and B. The immediate neighbours of B are females. G is sitting third to the right of F. D is sitting third to the right of A. A is not an immediate neighbour of E. The immediate neighbours of E are males and are facing the centre. The immediate neighbours of D are females and face outside. The one sitting third to the left of B is a male. No female is an immediate neighbour of G.

106. Who is sitting second to the right of E?
(a) C (b) B
(c) G (d) H
(e) None of these

107. How many persons are sitting between H and C when counted from the left side of H?
(a) One (b) Two
(c) Three (d) Four
(e) More than four

108. Which of the following statements is true regarding H?
(a) The one who is second to the right of H is a female.
(b) H is facing the centre.
(c) H is a male.
(d) The immediate neighbours of H are facing outside.
(e) None is true

109. What is D's position with respect to G?
(a) Third to the left (b) Third to the right
(c) Second to the left (d) Second to the right
(e) None of these

Directions (Qs. 110-112): Four of the following five are alike in a certain way based on their seating positions in the above arrangement and hence form a group.

110. Which of the following does not belong to the group?
(a) BE (b) CG
(c) GA (d) DH
(e) AF

111. Which of the following does not belong to the group?
(a) B (b) F
(c) G (d) A
(e) D

112. If all the friends are asked to sit in an alphabetical order starting from A in an anti-clockwise direction, the positions of how many will remain unchanged (excluding A)?
(a) Four (b) Three
(c) Two (d) One
(e) None

CHAPTER 10

Syllogism

INTRODUCTION

Syllogism is a Greek word that does mean 'inference' or 'deduction'. The problems of syllogism are based on two parts :

1. Proposition / Propositions
2. Conclusion / Conclusions drawn from given proposition/ propositions

WHAT IS A PROPOSITION?

Just consider the sentences given below:

(i) "All lions are pigs"
Subject — Predicate

(ii) "No cat is rat"
Subject — Predicate

(iii) "Some girls are beautiful"
Subject — Predicate

(iv) "Some kites are not birds"
Subject — Predicate

All the sentences mentioned above give a relation between subject and predicate. Here, it is clear from the sentences that a subject is the part of a sentence something is said about, while a predicate is the term in a sentence which is related to the subject.

Now, let us define the proposition :

A proposition is a sentence that makes a statement giving a relation between two terms. It has three parts :

(a) the subject
(b) the predicate
(c) the relation between subject and predicate

WHAT IS A CATEGORICAL PROPOSITION?

Let us see the sentences given below :

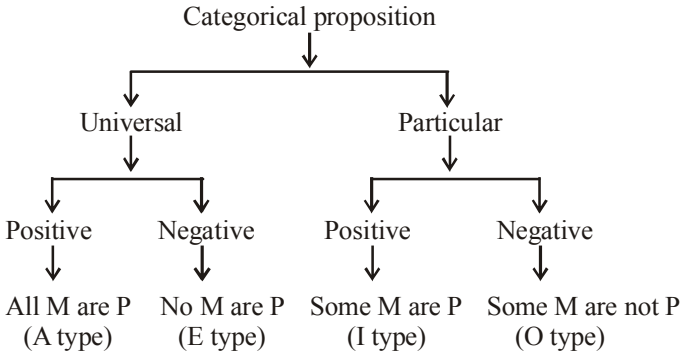
"All M are P"
"No M are P"
"Some M are P"
"Some M are not P"

What we notice in all above-Mentioned sentences that they are **condition free**. These type of sentences are called **Categorical Propositions**. In other words a categorical proposition has no condition attached with it and it makes direct assertion. It is different from non-categorical proposition which is in the format

"If M then P"

Types of categorical proposition:

It can be understood by the diagram given below :



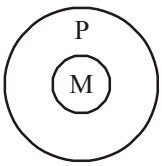
Therefore, it is clear, that universal propositions either completely include the subject (A type) or completely exclude it (E type). On the other hand, particular propositions either only partly include the subject (I type) or only partly exclude the subject (O type). Now we can summarise the four types of propositions to be used while solving the problems of syllogism :

Format		Type
All M are P	–	A
No M are P	–	E
Some M are P	–	I
Some M are not P	–	O

Venn Diagram

All A, E, I and O type of propositions can also be represented in pictorial way and this method is known as Venn diagram.

(i) **Representation of "All M are P" (A type):**



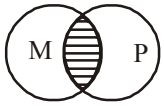
Here, the whole circle denoting M (all M) lies inside the circle denoting P. The other possibility is as picture given below :

(ii) **Representation of "No M are P" (E type):**

Here, the circle denoting M and P do not intersect at all and therefore, truely represents

"No M are P"

(iii) **Representation of "Some M are P" (I type):**
This representation will be in two ways :
Either (a):

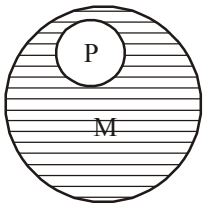


Here it is clear from the picture that shaded part of M is some part of P and shaded part of P is some part of M. Thus "Some M are P". Similarly, unshaded part of M is not P and unshaded part of P is not M. Thus it represents "Some M are not P".
Or (b):

Here, only shaded part of M is P also. Thus we can say "Some M are P."

(iv) **Representation of "Some M are not P" (O type):**
This representation will be in three ways :
Either (a):

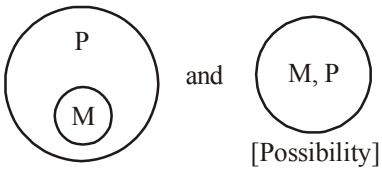
Here, unshaded part of M is not a part of P. Thus it represents "Some M are not P." But the shaded part represents "Some M are P".
Or (b) :



Here, shaded part of M is not a part of P. Thus it represents "Some M are not P" and the circle denoting P represents "All P are M".
Or (c):

It is clear from this pictorial representation that this represents "Some M are not P" and "No M are P" as well.

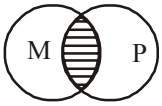
Now we can make a summary of Venn diagram:
All M are P (A type):



[Possibility]

No M are P (E type):

Some M are P (I type):
Either:

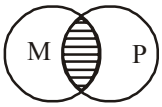


Some M are P
[Some M are not P]

Or :

Some M are P
[All P are M]

Some M are not P (O type):
Either:



Some M are not P
[Some M are P]

Or:

Some M are not P
[All P are M]

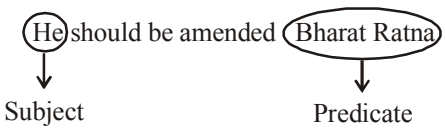
HOW TO IDENTIFY HIDDEN PROPOSITIONS?

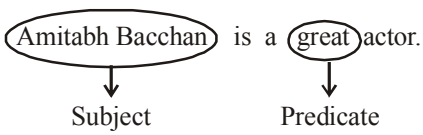
(i) **A type:** Apart from 'all' it starts with every, each and any.

EXAMPLE 1.

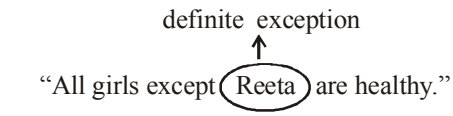
Every girl is beautiful.
[All girls are beautiful.]
Each of them is healthy.
[All (of them) are healthy.]
Any one could kill the lion.
[All can kill the lion.]

Further, let us see the sentences given below :





Thus, a positive sentence with a particular person as its subject is A type.
Also, a sentence in the following format is A type :

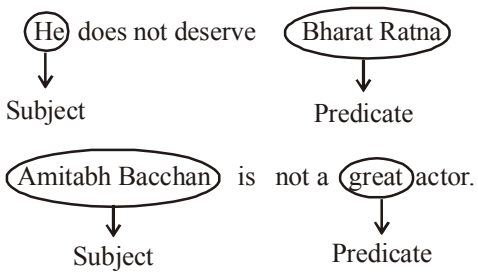


(ii) E type: Apart from 'no' this type of propositions starts from 'no one', 'none', 'not a single' etc.

EXAMPLE 2.

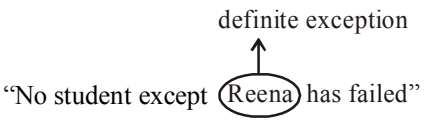
No one (student) is studious.
[No student is studious]
None of the girl is beautiful.
[No girl is beautiful]
Not a single girl is healthy.
[No girl is healthy].

Further, let us see the sentences given below :



Thus, a negative sentence with a particular person as its subject is E type proposition.

Also, sentences in following formats are E type :



"Is there any truth left in the world"
[No truth is left in the world.]

(iii) I type: Apart from some it also starts with words such as often, frequently, almost, generally, mostly, a few, most etc.

EXAMPLE 3.

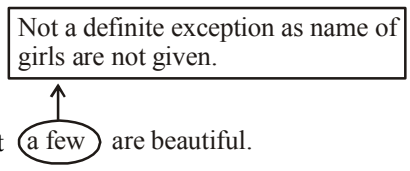
Almost all the girls are beautiful.
[Some girls are beautiful].
Most of the garments are handmade.
[Some of the garments are handmade].
Usually girls are beautiful.
[Some girls are beautiful.]
A few money are left in my wallet.
[Some money are left in my wallet].

Further, let us see the sentences given below :

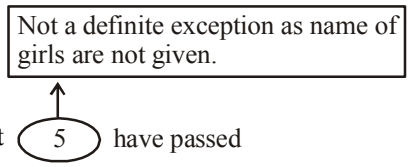
Few girls are not studious.
[Some girls are studious.]
Rarely is a girl not beautiful.
[Some girls are beautiful].
Seldom are women not housewife.
[Some women are housewife].

It is clear from the above examples that negative sentences begining with words like 'few', 'rarely', 'seldom', etc. (Also 'hardly', 'scarcely', 'little' etc.) are to be reduced to I type.

Just see the other formates given below :



[Some girls are beautiful]



[Some girls have passed]

Therefore, a positive proposition with an indefinite exception is reduced to I type.

(iv) O type : Apart from "Some ..... not' this type of statements start with words like 'all', 'every', 'any', 'each', etc.

EXAMPLE 4.

All girls are not beautiful.
[Some girls are not beautiful]
Every boy is not present.
[Some boys are not present.]

Further, let us see the following sentences :

Poor are usually not healthy.
[Some poor are not healthy]
Almost all the girls are not beautiful.
[Some girls are not beautiful.]
Most of the garments are not handmade.
[Some of the garments are not handmade.]
Girls are not frequently short tempered.
[Some girls are not short tempered].

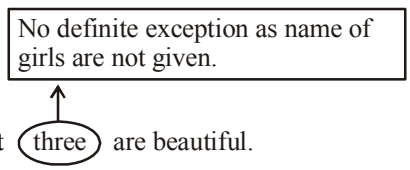
Now, it is clear from the above mentioned examples that negative propositions with words such as 'almost', 'frequently', 'most', 'mostly', 'a few', generally, etc. are to be reduced to the O–type propositions.

Again, positive propositions starting with words like 'few', 'scarcely', 'rarely', 'little', 'seldom' etc. are said to be O–type.

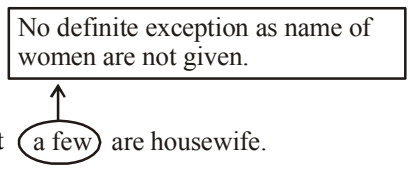
EXAMPLE 5.

Seldom are women jealous.
[Some women are not jealous]
Few girls are beautiful.
[Some girls are beautiful]
Rarely is a wealthy person worried.
[Some wealthy person are not worried.]

Also, see the following formates :



[Some girls are not beautiful.]



Therefore, a negative proposition with an indefinite exception, is reduced to O type.

Identifying Exclusive Propositions

Such propositions start with 'only', 'alone', 'none else but', 'none but' etc. and they can be reduced to either A or E or I format.

EXAMPLE 6.

Only graduates are Probationary Officers.

⇒ No graduate is Probationary Officer (E type)

⇒ All Probationary Officers are graduates. (A type)

⇒ Some graduates are Probationary Officers (I type)

General format of sentences given in the examinations :

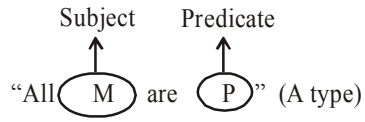
All M are P	(A type)
No M are P	(E type)
Some M are P	(I type)
Some M are not P	(O type)

***Note* :** General format given above are frequently asked formats in the examinations. But students must be ready for other hidden formates of A, E, I and O types of propositions as problems in hidden formates can also be given in question papers.

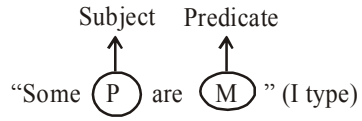
Conversion of Propositions :

Before solving the problems of syllogism it is must to know the conversion rules of all A, E, O, and I types of propositions :

Conversion of A type :

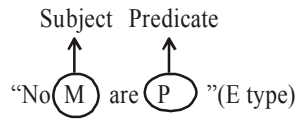


After conversion it becomes.

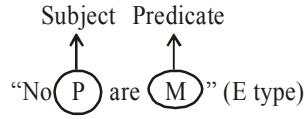


Therefore, it is clear that A type of propositions get converted into I type.

Conversion of E type :

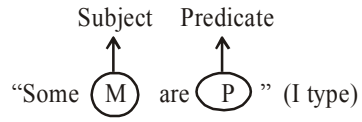


After conversion it becomes

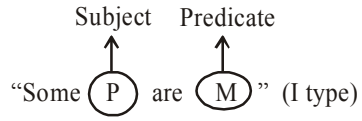


Therefore, E gets converted into E. "sss"

Conversion of I type :



After conversion it becomes



Therefore, I gets converted into I.

Conversion of O type :

O type of proposition can't be converted.

Note : In each conversion, subject becomes predicate and predicate becomes subject.

In fact, conversion is an immediate inference that is drawn from a single proposition while inference drawn from two propositions are called mediate inference.

Now we can make a short table of conversion to remember.

Table of conversion :

Type of proposition	Get converted into
A	I
E	E
I	I
O	Never get converted

Rule to draw conclusion :

After knowing conversion of propositions, we must learn the rules to draw conclusions. In problems of syllogism, conclusions are drawn either from single propositions or from two proposition or from both. But a conclusion from single proposition is just a conversion of that proposition while to get conclusion from two propositions a certain table is used that tells us what type of conclusion (in form of proposition) we get out of two propositions. To understand it, let us see the following conclusion table :

Conclusion Table

I Proposition	II Proposition	Conclusion
A	A	A
A	E	E
E	A	$(O)^R$
E	I	$(O)^R$
I	A	I
I	E	O

Note :

(a) Apart from above 6 pairs of propositions, no other pair will give any conclusion.

(b) The conclusion drawn out of two propositions is itself a proposition and its subject is the subject of the Ist statement while its predicate is the predicate of the 2nd statement. The common term get disappeared.

(c) $(O)^R$ does mean that the conclusion is O type but is in reverse order. In this case, the subject of the inference or conclusion is the predicate of the 2nd proposition and the predicate of the conclusion is the subject of the Ist sentence or statement.

(d) The conclusion table gives correct conclusions or inference if and only if the two propositions are aligned properly.

WHAT IS ALIGNING ?

Let us see the following examples :

EXAMPLE 7.

Statements :

I. All (girls) are beautiful.

II. Some (girls) are Indian.

EXAMPLE 8.

Statements :

I. No (pen) is chair.

II. Some tables are (pen).

EXAMPLE 9.

Statements :

I. Some women are (men).

II. No (men) is chair.

In all the above mentioned example, we notice that in two statements of every example, there is a common term. In example 1 the word 'girl' is common; in example 2 the word 'pen' is common while in example 3 the word 'men' is common.

Now, the aligning of the two statements (propositions) does mean that the pair of statements must be written in such a way that the common term is the predicate of the 1st sentence and the subject of the 2nd.

Just think over the following examples :

Statements :

I. Some girls are (cute).

II. All (cute) are tall.

Here, the common term cute is the predicate of the I statement and subject of the 2nd statement. Therefore, the two statements (I & II) are properly aligned.

But see another example.

Statements :

I. Some (bats) are chairs.

II. Some cats are (bats).

Here, the sentences are not aligned as the predicate of the 1st statement is not the subject of the 2nd.

Then how to align it ? In such type of cases we change the order of sentences. In another words we put I sentence in place of II and II in place of I :

II. Some cats are (bats).

I. Some (bats) are chairs.

Let us consider another pair of statements.

I. All bats are chair.

II. All bats are cats.

Then how to align it ? In fact, in such cases we do alignment in two ways :

(a) by converting statement I as

I. Some chair are (bats).

II. All (bats) are cats.

and

(b) by changing the order of the sentences and then converting the statement II.

Now 1st change the order as :

II. All bats are cats.

I. All bats are chair.

Again we do conversion for II and the aligned pair takes the form as

II. Some cats are (bats).

I. All (bats) are chair.

Therefore, as per the requirement and nature of the sentence the alignment is done.

(i) only by changing the order of sentences.

or

(ii) only by converting of the sentences.

or

(iii) By changing the order of the statements and then converting one of the sentences.

IEA Rule

Alignment must be done in IEA order. It does mean that if the two statements are I & E then the conversion must be done for I and for E & I it will be done for E.

After discussing all the minute things about this chapter, now we have come at the position of solving the problems of syllogism. This chapter suggests two methods:

(1) By Analytical Method

(2) By Venn Diagram

(1) **Analytical method :**

This method has two main steps :

(a) Aligning the pair of sentences.

(b) Using conclusion table to draw conclusion.

EXAMPLE 10.

Statements :

I. All rats are cats.

II. All rats are men.

When aligned it takes the form as

I. Some cats are (rats) [I type]

II. All (rats) are men [A type]

Now we use the conclusion table given in this chapter that says

I + A = I type of conclusion.

Therefore, the drawn conclusion must be

"Some cats are men"

It is clear that the conclusion drawn "Some cats are men" is a mediate inference as it is the result of two propositions. But in actual problem immediate inferences are also given in conclusion part and that format is given below :

EXAMPLE 11.

Statements :

I. All rats are cats.

II. All rats are men.

Conclusion :

(i) Some cats are men.

(ii) Some men are cats.

(iii) Some rats are cats.

(iv) Some cats are rats.

(v) Some rats are men.

(vi) Some men are rats.

Answer options :

(a) only (iii) follows

(b) only (i), (ii) and (iii) follow

(c) only (iv) follows

(d) all follow

(e) none of these

Here, the correct option is (d).

Conclusion (i) follows because it is the mediate inference of statements I & II.

Conclusion (ii) is the conversion of conclusion (i).

Conclusion (iii) is the immediate inference (conversion) of statement I while conclusion (iv) is the conversion of conclusion (iii).

Conclusion (v) is the immediate inference (conversion) of statement II while conclusion (vi) is the conversion of conclusion (v).

Further, in some problems complementary pairs are also seen in the conclusion part in the forms of sentence given below :

(i) Some cats are rats.
(ii) Some cats are not rats. — I-O pair

(i) All cats are rats.
(ii) Some cats are not rats. — A-O pair

(i) Some cats are rats.
(ii) No cats are rats. — I-E pair

Apart from I-O, A-O and I-E pair the two sentences must have same subject and predicate as are the above mentioned pairs. For these pairs we write the form
Either (i) or (ii) follows
For example, see the following format :

EXAMPLE 12.

Statements :
I. Some dogs are cats. II. Some cats are rats.
Conclusions :
(i) Some cats are dogs.
(ii) Some rats are cats.
(iii) All cats are rats.
(iv) Some dogs are rats.
(v) Some dogs are not rats.
Answer options :
(a) All follow.
(b) Only (i) follows.
(c) Only (ii) and (iii) follow.
(d) Either (iv) or (v) and (i) & (ii) follow.

Here, option (d) is correct because conclusion (i) is the immediate inference (conversion) of statement I while conclusion (ii) is the immediate inference of II. Conclusion (iv) & (v) make complementary pair of I-O type.
Conclusion (iii) is not correct because I and II are I type of statements and I + I does not give any conclusion. Further, A type of conclusion can not be found from the immediate inferences (conversion) of I type of statements as I & II are.
Now, the complete process of solving syllogism problems can be summaried as below :

(a) 1st step is aligning the sentences.
(b) 2nd step is using conclusion table.
(c) 3rd step is checking immediate inferences.
(d) 4th step is checking through the conversion of immediate inferences & mediate inferences.
(e) Checking the complementary pairs.

(2) **Venn diagram method for solving problems :**

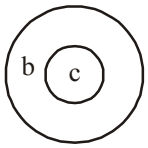
Students will have to adopt three steps to solve the syllogism problems through Venn diagram method :

(a) 1st step is sketching all possible pictorial representation for the statements separately.
(b) 2nd step is combining possible pairs of these representations of all the statements into one.
(c) 3rd and final step is making interpretation of this combined figure. Conclusions are true if they are supported by all the combined figures in 2nd step.

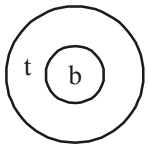
Now let us solve a problem.

EXAMPLE 13.

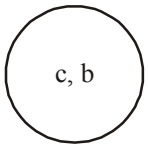
Statements :
A. All chairs are books. B. All books are ties.
Conclusions :
I. Some ties are books. II. Some ties are chairs.
1st Step :



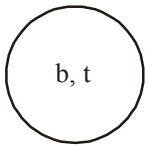
1A



1B



2A

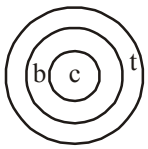


2B

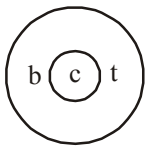
Here, 1A and 2A are representations for statement A while 1B and 2B are representations for statement B. In these representations
b = books
c = chairs
t = ties

2nd step :

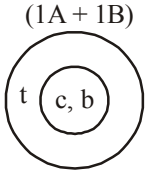
Let us combine all the possible pairs of this pictorial representations :



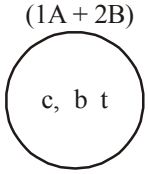
(1A + 1B)



(1A + 2B)



(2A + 1B)



(2A + 2B)

3rd step :

When we interpret the pictures in step II, we find that all the pictures support both the conclusions. Therefore, conclusion I :
"Some ties are books" and
conclusion II.
"Some ties are chairs"
both are true.

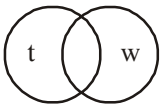
Important Note : *In the Venn diagram method, any conclusion given with any problem will be true if and only if it is supported by all the combined pictorial representations through 2nd step. If any pictorial representation contradicts the given conclusion, it will be put in the category of incorrect or wrong conclusion.*

Now take another problem :

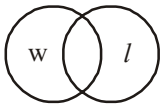
EXAMPLE 14.

Statements :
A. Some tigers are wolves.
B. Some wolves are lions.
Conclusion :
I. Some tigers are lions.
II. Some tiger are not lions.

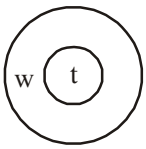
Sol. 1st step :



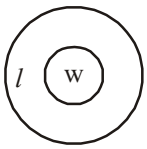
1A



1B

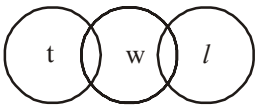


2A



2B

2nd step :



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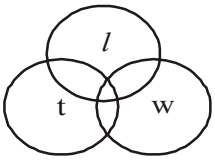
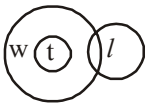


(1A + 1B)



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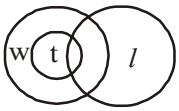
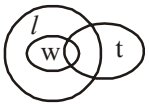


(2A + 1B)



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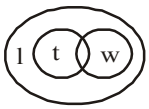
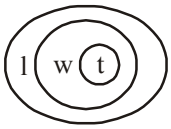


(1A + 2B)



(2A + 2B)

POSSIBILITY

Possibility is a concept of inconsistency for an event which is not yet verified but if true would explain certain facts or phenomena.

Generally the meaning of possibility is probability, *viz*. possibility exists where nothing is certain between the objects. In general language determination of possibility exist easily in that condition when between two objects have no certainty or the truth facts accordingly.

Let's understand below table in which possibility exists where no definite relation occurs between the objects and definite or proper relation between the objects eliminate existance of any possibility. In simple way given condition eliminates the possibility and improper condition favours the possibility. Here, we can go through with an example which will also clear the term possibility.

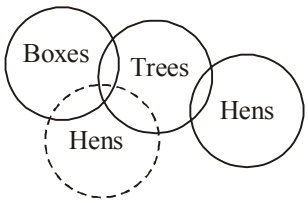
Condition	Possibility
Given facts	cannot be determined
Imaginary facts	can be determined

EXAMPLE 15.

Statements Some boxes are trees
Some trees are hens.

Conclusions I. Some boxes being hens is a possibility
II. All trees being hens is a possibility

Sol.



In Conclusion I, before deciding the possibility between boxes and hens, we must notice the relation between both, we find that there is no relation between boxes and hens, so possibility favours the condition and the conclusion I is true for possibility and in Conclusion II we must notice the relation between trees and hens. We find that both have some type of relation between them so the possibility of 'All between trees and hens is true. Hence, both the Conclusions I and II follow.

Given Exclusive Proposition	Desired Proposition	Possibility
All	All	×
Some	Some	×
No	No	×
No	Some not	×
Some	All	✓
No proper relation	Some All	✓

***Note*:** Improper relation between two objects favours the possibility (In above example Conclusion I)

Special Cases of Exclusive Proposition

If the statement is of	Conversion	Illustration	Meaningful Conversion
Much, more, many, very, a few, most, almost	Some	Most A are B. A few X are Y.	Some A and B. Some X or Y.
Atleast	Some	Atleast some A are B.	Some A and B.
Definitely	No use	Some A are definitely B. Some X are definitely not Y.	Some A are B. Some X are not Y.
Only		Only A are B.	All B are A.
1% to 99%	Some	38% A are B. 98% X are Y.	Some A are B. Some X are Y.

EXERCISE

Directions (Qs. 1-5) : In each questions below are given some statements followed by two conclusions I and II. You have to take given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follow/s from the given statements, disregarding commonly known facts. Read both the conclusions and give answer as

(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusions I and II follow.

1. **Statements :** All mobiles are androids.
No android is a phone.
Conclusions : I. Some mobiles are not phones.
II. No phone is a mobile.

2. **Statements :** All artists are smokers.
Some smokers are drunkards.
Conclusions : I. All smokers are artists.
II. Some drunkards are not smokers.

3. **Statements :** Some pastries are toffees.
All toffees are chocolates.
Conclusions : I. Some chocolates are toffees.
II. Some toffees are not pastries.

4. **Statements :** All stones are water.
Some water are clean.
Conclusions: I. Some stones are clean.
II. No stone is clean.

5. **Statements :** All umbrellas are aeroplanes.
Some aeroplanes are birds.
Conclusions: I. Some umbrellas are aeroplanes.
II. Some birds are umbrellas

Directions (Qs. 6-20) : In each of the questions below are given three statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

6. **Statements:**
Some boxes are trees.
Some trees are horses.
All horses are fruits.
Conclusions:
I. Some fruits are boxes.
II. Some fruits are trees.
III. Some horses are boxes
IV. No fruits are boxes.
(a) None follows
(b) Only either II or IV follows
(c) Only either I or IV and II follow
(d) Only either I or III and IV follow
(e) None of these

7. **Statements:**
All fans are rooms.
No room is green.
Some windows are green.
Conclusions:
I. Some windows are fans.
II. Some windows are rooms.
III. Some fans are green.
IV. No green is fan.
(a) Only I follows (b) Only III follows
(c) Only IV follows (d) Only II and IV follow
(e) All follow

8. **Statements:**
No man is sky.
No sky is road.
Some men are roads.
Conclusions:
I. No road is man.
II. No road is sky.
III. Some skies are men.
IV. All roads are men.
(a) None follows (b) Only I follows
(c) Only I and III follow (d) Only II and III follows
(e) None of these

9. **Statements:**
Some shirts are coats.
All coats are jackets.
Some jackets are trousers.
Conclusions:
I. Some shirts are jackets.
II. Some jackets are shirts.
III. All trousers are jackets.
IV. Some trousers are jackets.
(a) All follow
(b) Only I, II and III follow
(c) Only I, II and IV follow
(d) Only II, III and IV follow
(e) None of these

10. **Statements:**
All bikes are scooters. .
All scooters are scooties.
All scooties are mopeds.
Conclusions:
I. All mopeds are scooties.
II. All scooties are scooters.
III. All scooters are bikes.
IV. All bikes are mopeds.
(a) None follows (b) All follow
(c) Only III and IV follow (d) Only IV follows
(e) None of these

11. **Statements:**
All biscuits are chocolates.
Some chocolates are breads.
All breads are pastries.
Conclusions:
I. Some biscuits are pastries.
II. Some pastries are chocolates.
III. Some biscuits are not pastries.
IV. All pastries are breads.
(a) Only I and II follow
(b) Only I, II and III follow
(c) Only either I or III and II follow
(d) Only either I or III and IV follow
(e) None of these

12. **Statements:**
Some buses are trains.
No train is a dog.
All dogs are parrots.
Conclusions:
I. No bus is a parrot.
II. Some parrots are trains.
III. Some parrots are buses.
IV. No dog is a bus.
(a) Only either I or III follows
(b) Only II follows (c) Only IV follows
(d) Only I and III follow (e) None of these

13. **Statements:**
Some cups are flowers.
Some flowers are boxes.
All boxes are tigers.
Conclusions:
I. Some tigers are cups.
II. Some tigers are flowers.
III. Some boxes are cups.
IV. No tiger is a flower.
(a) None follows
(b) Only either II or IV follows
(c) Only III follows
(d) Only either I or III follows
(e) None of these

14. **Statements:**
All glasses are roads.
No road is a stick.
Some sticks are pens.
Conclusions:
I. Some glasses are sticks.
II. Some pens are sticks.
III. Some roads are sticks.
IV. No glass is a stick.
(a) None follows
(b) Only I or IV and II follow
(c) Only either I or III or II follows
(d) Only either I or II and IV follow
(e) None of these

15. **Statements:**
All buses are trains.
All trains are rickshaws.
All rickshaws are cycles.
Conclusions:
I. All cycles are buses.
II. All rickshaws are buses.
III. All buses are rickshaws.
IV. All trains are cycles.
(a) All follow (b) None follows
(c) Only.I and II follow (d) Only II and III follow
(e) None of these

16. **Statements:**
No tree is fruit.
All fruits are stones.
All stones are rains.
Conclusions:
I. No stone is tree.
II. No rain is tree.
III. Some rains are fruits.
IV. Some rains are trees.
(a) None follows
(b) Only either II or IV and III follow
(c) Only either II or III and I follow
(d) All follow
(e) None of these

17. **Statements:**
All fans are tubelights.
No pen is a bulb.
Some bulbs are fans.
Conclusions:
I. Some pens are tubelights.
II. No pens are tubelights.
III. Some tubelights are fans.
IV. All tubelights are fans.
(a) Only I and II follow
(b) Only I, II and III follow
(c) Either I or II and III follow
(d) Only III and IV follow
(e) None of these

18. **Statements:**
All shirts are trousers.
Some socks are shoes.
All shoes are shirts.
Conclusions:
I. Some socks are shirts.
II. Some socks are trousers.
III. All shoes are trousers.
IV. All shoes are socks.
(a) Only I and II follow (b) Only I or II or III follows
(c) Only II and IV follow (d) Only III and IV follow
(e) None of these

19. **Statements:**
All cups are tables.
No table is water.
Some waters are clothes.
Conclusions:
I. No cloth is cup.
II. No cloth is table.
III. Some clothes are waters.
IV. Some waters are cups.
(a) None follows (b) All follow
(c) Only III follows (d) Only I and II follow
(e) None of these

20. **Statements:**
No table is fruit.
No fruit is window.
All windows are chairs.
Conclusions:
I. No window is table. **II.** No chair is fruit.
III. No chair is table. **IV.** All chairs are windows.
(a) None follows (b) All follow
(c) Only I and II follow (d) Only III and IV follow
(e) None of these

Directions (Qs. 21-35): In each of the following questions two/three statements are given and these statements are followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

Give answer:
(a) If only I conclusion follows
(b) If only II conclusion follows
(c) If either I or II follows
(d) If neither I nor II follows
(e) If both I and II follow

21. **Statements:** Some mobiles are pagers.
No mobile is a laptop.
Conclusions: I. No laptop is a pager.
II. Some pagers are definitely not mobiles

22. **Statements:** All tables are chairs.
All chairs are beds.
No bed is sofa.
Conclusions: I. Some tables are definitely not beds.
II. No sofa is a table.

23. **Statements:** All tables are chairs.
All chairs are beds. No bed is sofa
Conclusions: I. No chair is sofa.
II. Some tables being sofa is a possibility.

24. **Statements:** Some digits are letters.
All digits are symbols. No symbol is an alphabet.
Conclusions: I. Some symbols are letters.
II. No digit is an alphabet.

25. **Statements:** All rivers are seas. Some seas are oceans.
Conclusions: I. All rivers are oceans.
II. All oceans being rivers is a possibility.

(Qs. 26-27)
Statements: A. Some poor are rich
B. All rich are doctors.
C. Some intelligent are doctors.

26. **Conclusions:** I. At least some poor are intelligent.
II. All intelligent being rich is a possibility.

27. **Conclusions:** I. All intelligent being doctors is a possiblity.
II. Some poor are doctors.

(Qs. 28-29)
Statements: A. All fans are bulbs
B. All wires are holders.
C. Some wires are bulbs.

28. **Conclusions:** I. At least some fans are wires.
II. All holders being fans is a possibility.

29. **Conclusions:** I. All fans being holders is a possibility.
II. Some holders are bulbs.

(Qs. 30-31)
Statements: A. No saving A/c is a current A/c.
B. Some fixed deposits are saving A/c.
C. Some currents A/c are recurring deposits.

30. **Conclusions:** I. All saving A/c being current A/c is a possibility.
II. All fixed deposits being current A/c is a possibility.

31. **Conclusions:** I. All current A/c being fixed deposits is a possibility.
II. All saving A/c being recurring deposits is a possibility.

32. **Statements:** All shopkeepers are servants.
Some shopkeepers are poor.
No poor is rich.
Conclusions: I. All shopkeepers, If they are poor, are also rich
II. At least some shopkeepers being rich is a possibility.

33. **Statements:** All books are dictionaries.
Some books are diaries.
All dictionaries are copies
Conclusions: I. Some books are not copies
II. All dictionaries being diaries is a possibility.

34. **Statements:** No fan is a light.
All boards are fans.
All fans are wires.
Conclusions: I. All boards being wires is a possibility.
II. No boards is a light.

35. **Statements :** No air is wind.
All winds are typhoons.
Conclusions: I. No air is typhoon.
II. All air being typhoons is a possibility.

Directions(Qs. 36-56): In each of the following questions two/three statements are given and these statements are followed by two/three/four conclusions. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

36. **Statements :** All petals are flowers.
Some flowers are buds.
Some buds are leaves.
All leaves are plants.
Conclusions: I. Some petals are not buds.
II. Some flowers are plants.
III. No flower is plant.
(a) Only I follows (b) Either II or III follows
(c) I and II follow (d) Only III follows
(e) None of the above

37. **Statements :** Some pens are keys.
Some keys are locks.
All locks are cards.
No card is paper.

Conclusions: I. No lock is paper.
II. Some cards are keys
III. Some keys are not paper.

(a) I and II follow (b) Only I follows
(c) Only II follows (d) All follow
(e) None follows

38. **Statements:** Some pearls are gems.
All gems are diamonds.
No diamond is stone.
Some stones are corals.

Conclusions: I. Some stones are pearls.
II. Some corals being diamond is a possibility.
III. No stone is pearl.

(a) Only I follows (b) Only II follows
(c) Either I or III follows (d) I and II follow
(e) None of these

39. **Statements :** Some apartments are flats.
Some flats are buildings.
All buildings are bungalows.
All bungalows are gardens.

Conclusions: I. All apartments being building is a possibility.
II. All bungalows are not buildings
III. No flat is garden.

(a) None follows (b) Only I follows
(c) Either I or III follows (d) II and III follow
(e) Only II follows

40. **Statements :** All chairs are tables.
All tables are bottles.
Some bottles are jars.
No jar is bucket.

Conclusions : I. Some tables being jar is a possibility.
II. Some bottles are chairs.
III. Some bottles are not bucket.

(a) Only I follows (b) I and II follow
(c) All follow (d) Only II follows
(e) None of these

41. **Statements :** Most of the doctors are engineers.
None of the engineers is a pilot.
All pilots are doctors.

Conclusions : I. Some engineers are doctors.
II. All doctors are pilots.
III. No pilot is an engineers.
IV. Some pilots are engineer.

(a) Only I follow (b) II and III follows
(c) I and III follow (d) Either III or IV follows
(e) None of these

Directions (Qs. 42-43) : In each questions below are given three statements followed by three Conclusions I, II and III. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows from the given statements disregarding commonly known facts.

42. **Statements :** Some nurses are doctors.
All doctors are medicines.
Some medicines tables.

Conclusions: I. Atleast some tablets are doctors.
II. Some medicine being doctors is a possibility.
III. Some medicine are definitely nurses.

(a) All follow (b) II and III follow
(c) Only II follow (d) Either III or Iv follows
(e) None of these

43. **Statements :** All files are folders.
All folders are boxes.
All boxes are drawers.

Conclusions: I. All folders being drawers is a possibility.
II. All boxes are files.
III. All files are definitely drawers.
IV. Atleast some drawers are folders.

(a) I and II follow (b) III and IV follow
(c) II and III follow (d) All follows
(e) None of these

Directions (Qs. 44-45) : In each question given four statements are followed by three Conclusions I, II and III. You have to take the four given statements to be true even if they seem to be at variance from the commonly known facts. Read the conclusions and decide which logically follows from the four given statements disregarding commonly known facts.

44. **Statements :** All footballers are music lover.
All footballers are dancer.
No dancer is cricketer.
No cricketer is player.

Conclusions : I. Some players can be music lover.
II. 25% of footballers are music lover.
III. No footballers is cricketer.

(a) Both II and III follow
(b) Only III follows
(c) Only II follows
(d) Only II and either I or III follow
(e) None of the above

45. **Conclusions :** I. Some cricketer are music lover.
II. There is a possibility that any cricketer can be music lover.
III. No music lover are cricketer.

(a) Either I or II follows
(b) Only I follows
(c) Only II follows
(d) Only II and either I or III follow
(e) None of the above

(Qs. 46 and 47):

Statements : All villages are cities.
Some cities are tehseel.
No tehseel is state.

46. **Conclusions :** I. Some states are cities being a possibility.
II. All cities are villages being a possibility.

(a) Only I follows (b) Only II follows
(c) Either I or II follows (d) None follows
(e) Both follow

47. **Conclusions :** I. Some states can never be tehseels.
II. All villages and cities being tahseel is a possibility.

(a) Only I follows (b) Only II follows
(c) Either I or II follows (d) None follows
(e) Both follows

Directions (Qs. 48-50) : In each of the questions below are given some statements followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide with of the given statements disregarding commonly known facts.

48. **Statements :** Some roses which are plants are flowers.
All plants are lotus.
Conclusions: I. Some lotus are not flowers.
II. Some lotus which are roses are flowers.
III. Some roses are lotus.
(a) I and II follow (b) Only II follows
(c) II and III follows (d) Only III follows
(e) None of these

49. **Statements :** All matches are cups.
Some fields are not viewers.
All viewers are fans.
Some matches are not fans.
Conclusions: I. Some cup which are fans are not viewers.
II. Some matches which are not viewers are cups.
III. Some fields which are fans are not matches.
(a) I and III follow (b) Only II follows
(c) II and III follows (d) Only III follows
(e) None of these

50. **Statements:** Some schools which are not students are colleges.
Student is a principal.
All schools are principals.
Conclusions: I. No college is a principal.
II. Some principals are colleges.
III. All colleges are schools.
(a) I and III follow (b) Either I or II follows
(c) Only II follows (d) Either I or III follows
(e) None of these

Directions (Qs. 51-54) In these questions statements followed by two conclusions(A&B) numbered I and II have been given. You have to decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

51. **Statements:** All fishes are birds.
No Bird is an animal.
All animals are mammals.
Conclusion A: I. At least some birds are mammals.
II. All mammals being birds is a possibility.
(a) Only conclusion II is true
(b) Neither conclusion I or II is true
(c) Both conclusion I and II are true
(d) Either conclusion I or II is true
(e) Only conclusion I is true
Conclusion B: I. No fish is an animal
II. All fishes being mammals is a possibility
(a) Only conclusion II is true
(b) Neither conclusion I or II is true
(c) Both conclusion I and II are true
(d) Either conclusion I or II is true
(e) Only conclusion I is true

52. **Statements:** Some forces are groups
All groups are powers
All powers are growth
Conclusion A: I. At least some forces are growth
II. All groups are growth
(a) Only conclusion II is true
(b) Either conclusion I or II is true
(c) Only conclusion I is true
(d) Neither conclusion I or II is true
(e) Both conclusion I and II are true
Conclusion B: I. All forces being powers is possibility
II. All powers are group
(a) Only conclusion II is true
(b) Either conclusion I or II is true
(c) Only conclusion I is true
(d) Neither conclusion I or II is true
(e) Both conclusion I and II are true

53. **Statements:** All books are scales
All scales are pencils
Some scales are pens
Conclusion A: I. No book is pen
II. All pencils are scales
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Either conclusion I or II follows
(d) Neither conclusion I or II follows
(e) Both conclusion I and II follows
Conclusion B: I. At least some scales are pen
II. No scale is a pen
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Either conclusion I or II follows
(d) Neither conclusion I or II follows
(e) Both conclusion I and II follows

54. **Statements:** All rainy are summers
Some summers are springs
No spring is sunny
Conclusion A: I. At least some rainy are springs
II. Some sunny being summers is a possibility
(a) Either conclusion I or II follows
(b) Both conclusion I and II follows
(c) Neither conclusion I or II follows
(d) Only conclusion I follows
(e) Only conclusion II follows
Conclusion B: I. All summers can never be sunny
II. No spring is a sunny
(a) Either conclusion I or II follows
(b) Both conclusion I and II follows
(c) Neither conclusion I or II follows
(d) Only conclusion I follows
(e) Only conclusion II follows

CHAPTER 11

Coded Inequalities

INTRODUCTION

Questions related to coded inequalities are essential part of competitive examinations. Such problems are not very difficult and very easy for them who are even slightly comfortable with basic mathematics. But for those, who are not at case with maths may find it a bit difficult. This chapter would give you the basic idea of inequalities and methods to solve it in time saving way.

WHAT IS THE PROBLEM LIKE? (PROBLEM FORMAT)

Sample Problem

Directions (Qs. 1-5) : In the following questions, the symbols α, β, γ, δ and η are used with following meaning:

A α B means A is greater than B.

A β B means A is either greater than or equal to B.

A γ B means A is equal to B.

A δ B means A is smaller than B.

A η B means A is either smaller than or equal to B.

Now, in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer.

(a) If only conclusion I is true.
(b) If only conclusion II is true.
(c) If either I or II is true.
(d) If neither I nor II is true; and
(e) If both I and II are true.

1. **Statements:** P α N, L γ P, O δ N, L η K
Conclusions: I. P δ K **II.** L α N

2. **Statements:** E γ F, C δ D, F β G, D α E
Conclusions: I. E α G **II.** C γ E

3. **Statements:** T β M, O γ N, T δ H, M γ O
Conclusions: I. T γ N **II.** T α N

4. **Statements:** R η Y, K γ L, Y δ X, R α K
Conclusions: I. Y α L **II.** Y γ L

5. **Statements:** P δ I, S γ C, S β I, C α O
Conclusions: I. C δ I **II.** S α P

It is clear from the given problem format that such problems involves essentially a combination of two elementary problems:-

i. Inequalities ii. Coding

It is obvious, that the coding part is not a big challenge here as the coding scheme is told entirely in advance. Hence, to decode the inequalities in a given problem is not an uphill task. In fact, you require only few seconds to decode the inequalities. As such problems based on inequalities, it is high time to get the concept of the basics of inequalities.

WHAT IS INEQUALITY?

As we know,

$3 \times 3 = 9$

Now, we can say that the result of multiplication between 3 and 3 is equal to 9. Therefore, $3 \times 3 = 9$ is a case of equality. But when we multiply 3×4, we get 12 as a result of this multiplication. It does mean that

$3 \times 4 \neq 9$

As 3×4, is not equal to 9, it is a case of inequality.

When, we come to know that one thing is not equal to another; there can be only two possibilities:-

(i) One thing is greater than another thing.
or
(ii) One thing is less than the another thing.

When, we denote (i) and (ii) mathematically, then we will write.

(i) One thing > another thing.
or
(ii) One thing < another thing.

where '>' denotes 'greater than'.
and '<' denotes 'less than'
Hence, you can write,

$3 \times 4 > 9$
$4 \times 1 < 9$

$(3 \times 4 > 9)$ does mean 'Product of 3 and 4 is greater than 9'.
$(4 \times 1 < 9)$ does mean 'Product of 4 and 1 is less than 9'.

Sometimes we come across two numbers where, we do not know the exact state of inequality between them. For example, we may have two numbers *m* and *n* and all that we know that '*n*' is not less than *m*'. In such case m can be either greater than or equal to *n*. This situation is represented as $\geq$ sign. When we have to represent '*m* is less than or equal to *n*' then we will use '$\leq$' sign. Let us see:-

$m \geq n$ does mean m is either greater than or equal to *n*.
$m \leq n$ does mean n is either less than or equal to *m*.

Hence, we can summarise the signs to be used in inequalities as below:

'=' is called equal to
'>' is called greater than
'$\geq$' is called greater than or equal to
'<' is called less than
'$\leq$' is called less than or equal to

WHAT IS CHAIN OF INEQUALITIES?

Sometimes two or more inequalities are combined together to create a single inequality having three or more terms. Such combination is called chain of inequalities. For example $24 > 20$ and $20 > 16$ can be combined as $24 > 20 > 16$. In the same way, $13 < 17$; $17 < 31$ and $31 < 38$ may be combined as $13 < 17 < 31 < 38$.

Note : *If you see the given problem format (sample problem). You will find that your primarily task is to combine two or more inequalities to create a single inequality.*

CONDITIONS FOR COMBINING TWO INEQUALITIES

Condition I: Two inequalities will be combined if and only if they have a common term.

Condition II: Two inequalities will be combined if and only if the common term is greater than (or 'greater' than or equal to') one and less than (or 'less than or equal to') the other.

For example : 14 > 13, 13 > 12 can be easily combined as '14 > 13 > 12'.

Coded Inequalities

Here,

$$14 > \underset{\text{Common term}}{13} > 12$$

Clearly, 14 > 13 and 13 > 12 have common term 13 and this common term is greater than 12 and less than 14. Hence, 14 > 13 and 13 > 12 have been combined into 14 > 13 > 12 as per the conditions I and II.

For example : 17 < 19, and 19 < 20 can be easily combined as 17 < 19 < 20.

Here,

$$17 < \underset{\text{Common term}}{19} < 20$$

Clearly, 17 < 19 and 19 < 20 have common term 19 and this common term is greater than 17 and less than 20. Hence, 17 < 19 and 19 < 20 have been combined into 17 < 19 < 20 as per the conditions I and II.

Now, let us see some examples of inequalities which can not be combined. Some such examples are given below:

i. 14 > 12, 19 > 18

ii. 18 < 20, 22 < 25

iii. 100 > 99, 80 > 77

iv. 100 < 115, 118 < 119

Clearly, (i), (ii), (iii) and (iv) can not be combined as they do not have any common term and therefore, they do not follow condition I and condition II.

How to Derive Conclusions from a Combined Inequalities?

To derive conclusion from a combined inequality, you have to eliminate the common term.

For example,

(a) If we have

$m > \ell > n$

then, our conclusion is $\boxed{m > n}$

(b) When, we have

$m < \ell < n$

then, our conclusion is $\boxed{m < n}$

(c) When, we have '≥' signs in the combined inequalities then you have to think a little bit more. Let us consider the combined inequality given below:

$m \geq \ell > n$

Here, m is either greater than ℓ or equal to ℓ.

Hence, the minimum value for m is equal to ℓ. But ℓ is always greater than n. Therefore, m is always greater than n.

$\therefore$ Our conclusion is $\boxed{m > n}$

(d) When, we have the following inequalities:-

$m > \ell \geq n$

In this case, m is always greater than ℓ and ℓ is either greater than n or equal to it. When ℓ is greater than n; m will obviously be greater than n. Even when ℓ is equal to n; m will be greater than n as m is always greater than ℓ.

$\therefore$ Our conclusion is $\boxed{m > n}$

(e) When, we have combined inequality

$m \geq \ell \geq n$

Here, m is either greater than ℓ or equal to ℓ.

When m is greater than ℓ; we have $m > \ell \geq n$, which gives the conclusion.

$\boxed{m > n}$ — (A)

When m is equal to ℓ; we have

$m = \ell \geq n$, which gives the conclusion

$\boxed{m \geq n}$ — (B)

Combining (A) and (B), we have the final conclusion as

$\boxed{m \geq n}$

From (a), (b), (c), (d) and (e), we get a rule for deriving conclusions from a combined inequality, we may say it 'Golden Rule'.

GOLDEN RULE

The conclusion inequality will have an '≥' sign or a '≤' sign if and only if both the signs in the combined inequality are '≥' or '≤' sign

Clearly, in (a), (b), (c), (d) and (e) only one inequality (e) ($m \geq l \geq n$) has '≥' as its both the sign.

REMEMBER

★ If m > n, then n < m must be true.

If m < n, then n > m must be true.

If m ≥ n, then n ≤ m must be true.

If m ≤ n, then n ≥ m must be true.

EITHER CHOICE RULES

I. When your derived conclusion is of the type $m \geq n$ (or $m \leq n$) then check if the two conclusions are $m > n$ and $m = n$ (or, $m < n$ and $m = n$). If yes, choice "either follows" is true.

II. If neither of the given conclusions seems correct. Then try to check if the given conclusions form a complementary pair. Given conclusions form a complementary pair in the 4 cases given below:-

(i) $m \geq n$ and $m < n$ (ii) $m > n$ and $m \leq n$

(iii) $m \leq n$ and $m > n$ (iv) $m < n$ and $m \geq n$

In such case, the choice "either follows" is correct.

Steps for Solving Problems

Step I: Decode the given symbols like $\alpha, \beta, \gamma, \theta, \delta, \eta$, etc.

Step II: Take one conclusion at a time and make an idea that which statements are relevant for evaluating it.

Step III: Use conditions I and II and the 'Golden Rule' to combine the relevant statements and derive a conclusion from it. They are:

Condition I: There must be a common term.

Condition II: The common term must be less than or equal to one term and greater than or equal to another.

Golden Rule: The conclusion — inequality is obtained by letting the common term be eliminated and it has a '≥' or a '≤' sign if and only if both the inequalities in 2nd step had a '≥' or a '≤' sign. In all other cases, there will be a '>' or a '<' sign in the conclusion.

After performing the above mentioned three steps, if a conclusion is established and verified, it is well and good. But if does not happen so, then you have to perform 4 more new steps given below:

New Step I: Check if the given conclusion directly follows from anyone single statement.

New Step II: Check if the conclusion — inequality you get is essentially as same as the given conclusion but written differently (As discussed in important points to remember)

New Step III: Check if the derived conclusion follows 'Either choice Rule I'.

New Step IV: If neither of the conclusions has been proved correct till now, then check 'Either choice Rule II'.

SOLUTION TO SAMPLE PROBLEM (PROBLEM FORMAT)

Through this, we will demonstrate how to use the stepwise method mentioned above to solve the real problem.

Step I: We decode the symbols at this very 1st step.

(1) **Statements:** P > N, L = P, O < N, L ≤ K
Conclusions: **I.** P < K **II.** L > N

(2) **Statements:** E = F, C < D, F ≥ G, D > E
Conclusions: **I.** E > G **II.** C = E

(3) **Statements:** T ≥ M, O = N, T < H, M = O
Conclusions: **I.** T = N **II.** T > N

(4) **Statements:** R ≤ Y, K = L, Y < X, R > K
Conclusions: **I.** Y > L **II.** Y = L

(5) **Statements:** P < I, S = C, S ≥ I, C > O
Conclusions: **I.** C < I **II.** S > P

Next, we will take each of the questions separately and perform step II and step III for each of the conclusion.

1. **Conclusion I:** Relevant statements = (L = P, L ≤ K). Combining both the relevant statements, we get P ≤ K. This does not match to the given conclusion P < K.

Conclusion II: Relevant statements are P > N and L = P combining both the relevant statement, we get L > N. Hence, only conclusion II follows.

∴ Our correct answer choice is (b)

2. **Conclusion I:** Relevant statements = (E = F, F ≥ G). Combining both the relevant statements, we get E ≥ G. This does not match with the given conclusion E > G.

Conclusion II: Relevant statements are C < D and D > E. Combining both the relevant statements, we get C < E. This does not match with C = E. Hence, both conclusions are rejected. Now, new steps I, II, III, IV as mentioned in the segment 'Steps for solving problems' also does not work for this conclusion. Hence, our correct answer choice is (d).

3. **Conclusion I:** Relevant statements = (O = N, M = O, T ≥ M). Combining the 1st two statements, we have M = N. Now, combining M = N with T ≥ M, we get T ≥ N. Clearly, conclusion I does not follow.

Conclusion II: We have already seen then T ≥ N follows. This is different from T > N. So, the conclusion II does not follow. But, by virtue of New step III. Choice (c) is our correct answer.

4. **Conclusion I:** Conclusion I is Y > L. Now from the given statements Y and L do not appear separately with a single common term. Y appears with R, R with K and K with L. Hence, we will take these three statements as our relevant statements. They are
R ≤ Y, R > K, K = L
Combining R ≤ Y and R > K
(Just see 'Golden Rule'), we get Y > K, now combining it with K = L; we get Y > L. Hence, conclusion I follows.

Conclusion II: Conclusion II is Y = L, which is not true as > L has been proved.

∴ Our correct answer choice is (a).

5. **Conclusion I:** Conclusion I is C < I. C and I appear separately with S in S = C and S ≥ I. So, these two are our relevant statements. Combining these two relevant statements, we get: C > I. This does mean conclusion I is not true.

Conclusion II: Conclusion II is S > P. Now, S and P appear separately with a common term I; in P > I and S ≥ I. So these two are our relevant statements and combining them, we get: P < S. By New step II, it is the same as S > P. Therefore, conclusion II follows.

∴ Our correct answer choice is (b)

In this type of questions, usual mathematical symbols (+, –, ÷, ×, <, > etc.) are represented by symbols, different from the usual ones. To solve this type of questions, substitute the real signs in the given expression and then solve the expression according to the rule BODMAS.

EXAMPLE 1 to 3: In the following questions, the symbols ©, @, =, * and $ are used with the following meanings :
P © Q means 'P is greater than Q';
P @ Q means 'P is greater than or equal to Q';
P = Q means 'P is equal to Q';
P * Q means 'P is smaller than Q';
P $ Q means 'P is either smaller than or equal to Q'.
Now in each of following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true.
Give answer :
(a) if only conclusion I is true;
(b) if only conclusion II is true;
(c) if either I or II is true;
(d) if neither I nor II is true.
(e) if both I and II are true.

1. **Statements :** P © T, M $ K, T = K
Conclusions : I. T © M II. T = M
Sol. (c) Given statements : P > T, M ≤ K, T = K.
T = K, K ≥ M ⇒ T ≥ M ⇒ T > M or T = M
⇒ T © M or T = M
So, either I or II is true.

2. **Statements:** D © F, F = S, S $ M
Conclusions : I. D © M II. F @ M
Sol. (d) Given statements : D > F, F = S, S ≤ M
F = S, S ≤ M ⇒ F ≤ M
Therefore, II is not true.
Now D > F, F ≤ M
⇒ nothing can be said about F and M.
So, I is not true.

3. **Statements :** J = V, V * N, R $ J
Conclusions : I. R * N II. J @ N
Sol. (a) Given statements: J = V, V < N, R ≤ J
R ≤ J, J = V, V < N ⇒ R < N i.e R * N.
So, I is true.
Now, J = V, V < N ⇒ J < N
So, J @ N i.e., J ≥ N is not true.
Thus, II is false.

DIRECT INEQUALITY

In this type of questions direct relation between two or more than two elements are given in a meaningful inequality. Candidates are required to establish the relation between elements with the help of used signs between the elements.

EXAMPLE 4 : Which of the following symbols should replace the question mark in the given expression in order to make the expressions. 'I > L' as well as 'M ≥ K' definitely true?
I > J ≥ K ? L ≤ N = M
(a) > (b) <
(c) ≤ (d) =
(e) Either < or ≤

Sol. (d) On putting sign (=) in place of question mark (?)
I > J ≥ K = L ≤ N = M ⇒ means I > L and M ≥ K

EXAMPLE 5. Which of the following symbols should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expression in such a manner that 'S > P' definitely holds true but 'S = P' does not hold true?
P ___ Q ___ R ___ S
(a) ≥, >, ≥ (b) ≤, =, ≤
(c) >, <, < (d) <, ≤, ≤
(e) None of these
Sol. (d) On putting sign (<, ≤, ≤) in place of blank spaces P ≤ Q ≤ R ≤ S ⇒ means S > P and S = P
Directions (Illustrations 3 and 4) : In these questions, relationship between different elements is shown in the statements. These statements are followed by two conclusions.
Give answer
(a) If only Conclusion I follows
(b) If only Conclusion II follows
(c) If either Conclusion I or II follows
(d) If neither Conclusion I nor II follows
(e) If both Conclusions I and II follow

3. **Statement** E < F ≤ G = H > S
Conclusions I. G > S II. F ≤ H
Sol. (e) **Statement** E < F ≤ G = H > S
Conclusions I. G > S → It follows because G = H is greater than S.
II. F ≤ H → It follows because H is equal to G and G ≥ F.
So, both Conclusions I and II follow.

4. **Statement** P ≤ Q < W = L
Conclusions I. L > P
II. Q ≤ L
Sol. (a) **Statement** P ≤ Q < W = L
Conclusions I. L > P → If follows
II. Q ≤ L → It does not follow because L is equal to W and W is only greater than Q.

REMEMBER

Inequality depends upon combining more than two element with a common term. Now observe the below diagram thoroughly
Accordance to this diagram
Definite Conclusion
• > = → > • < = → < • ≥ = → ≥ • ≤ = → ≤
• ≥ > → > • ≤ < → < • < = ≤ → < • > = ≥ → >
Indefinite Conclusion
• > < → No relation • ≥ ≤ → No relation
• > ≤ → No relation • ≥ < → No relation

Shortcut Approach

Case 1. < OR >

Two signs opposite to each other will make the conclusion wrong But again if the signs are in same manner that will not make it wrong.
For example:
If A > B < C > D then A < C = False, C > A = False .
But

If $E > F > G > H$ then $E > G$ = True, $F > H$ = True, $E > H$ = True.
Statement: $A < D > C < E > B$
Conclusions:
- $C > B \rightarrow$ False
- $A < E \rightarrow$ False
- $D > B \rightarrow$ False

In simple way, whenever these two sign comes in opposite direction the answer will be false.

Case 2. ≤ OR ≥

Two signs opposite to each other will make the conclusion wrong But again if the signs are same then it will be true.
For example:
If $A \geq B \leq C$ then $A \leq C$ = False, $C \geq A$ = False.
But
If $A \geq B \geq C$ then $A \geq C$ = True, $C \leq A$ = True.
Statement: $B \geq D \leq A \geq F \geq C$
Conclusions :
I. $A \geq C \rightarrow$ True
II. $B \leq F \rightarrow$ False
III. $D \geq C \rightarrow$ False

Case 3. Sets Priority

1st Priority : < or >
2nd Priority: ≤ or ≥
3rd Priority: =
Statement: $P \geq R > Q = T \geq S$
Conclusions :
I. $P \geq Q \rightarrow$ False
II. $P > Q \rightarrow$ True
III. $Q \geq S \rightarrow$ True

Case 4.

When it occurs to you that the statement of order is opposite just change the sign into similar opposite direction. Then change the sign into similar opposite /corresponding / alternative direction.
If $A > B > F > C < D < E$
than $F < A \rightarrow$ True
Example : [$\because A > B > F = F < B < A$]
Statements : $A > B > F > C$; $D > E > C$
Conclusions:
I. $C < A \rightarrow$ True
II. $C > A \rightarrow$ False
Statements : $R \geq S \geq T > U > X$; $T < V < W$
Conclusions:
I. $R > X \rightarrow$ True [Note: Apply Case 3 here]
II. $X < R \rightarrow$ True [Note: Apply Case 3 & 4 here]
Statements : $K \leq L \leq M = N$; $P \geq O \geq N$
Conclusions:
$K \leq L \leq M = N \leq O \leq P$
I. $K < O \rightarrow$ False
II. $K = N \rightarrow$ False — Neither Nor
III. $K \leq M \rightarrow$ True
IV. $K < P \rightarrow$ False
V. $K = P \rightarrow$ False
Statement IV & V Apply Either Or

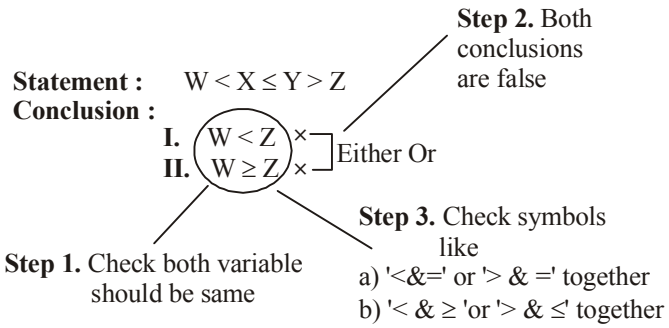
Case 5. > or < and ≥ or ≤

Whenever there is two conclusions which are false then check for these two symbols **(> or < and ≥ or ≤)**. In most of case where two conclusions are false and these two similar signs are not there respectively then that statement can call it as either or but should check there variable it should same.

#Case Either Or :

Note : First thing need to check whether in conclusion any 2 or more conclusions are wrong then if it is there then check whether the two variables are same. If It happens then write it as 'Either or' but after checking their symbols.
Rules:
1. Both conclusion should False
2. Should have same Predicate or Variable
3. Check the symbols

If above conditionsare satisfied then write it as 'Either Or' Other wise leave it.
Note : If 3 condition is satisfied than the conclusions are called Either Or



Solved Examples :
Statement : $H = W \leq R > F$
Conclusion : I. $R = H$ × ; II. $R > H$ × — Either Or
Statement : $H > L = E < T$
Conclusion : I. $H \leq T$ × ; II. $H > T$ × — Either Or
Statement : $S < T \geq R \geq M$
Conclusion : I. $M < T$ × ; II. $M = T$ × — Either Or
Statement : $I \geq H = T > S \leq R$
Conclusion: I. $I > T$ × ; II. $I = T$ × — Either Or

#Case Neither Nor :

First thing you need to check whether in your conclusion any 2 or more conclusions are wrong
then write it as 'Neither Nor' but before checking their symbols.
Rules:
1. Both conclusion should False
2. Check the symbols

If both conditions are satisfied then write it as " Neither Nor' other wise leave it.
Statement : $P > Q \geq S = R$
Conclusion : I. $P \geq R$ × ; II. $R > Q$ × — Neither nor
Statement : $L = T \leq J \geq K$
Conclusion : I. $L > K$; II. $T \leq K$ — Neither nor
Statement : $V < L \geq J \leq T$
Conclusion : I. $V < J$; II. $L = T$ — Neither nor
Statement : $G \leq K \leq F < M$
Conclusion: I. $G > F$; II. $K \leq M$ — Neither nor

EXERCISE

Directions (Qs.1-5): In the following questions, the symbols @, #, $, * and % are used as illustrated below:
'P @ Q' means 'P is not smaller than Q'.
'P # Q' means 'P is neither greater than nor equal to Q'.
'P $ Q' means 'P is neither smaller than nor greater than Q'.
'P * Q' means 'P is not greater than Q'.
'P % Q' means 'P is neither smaller than nor equal to Q'.
Now, in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true? Give answer
(a) if only Conclusion I is true.
(b) if only Conclusion II is true.
(c) if either Conclusion I or II is true.
(d) if neither Conclusion I nor II is true.
(e) if both Conclusions I and II are true.

1. **Statements:**
M $ K, D * K, R # K
Conclusions:
I. D $ M
II. M % D

2. **Statements:**
F * M, M % R, E @ F
Conclusions:
I. M % E
II. R @ E

3. **Statements:**
H $ K, T # H, W * T
Conclusions:
I. K % W
II. T # K

4. **Statements:**
N % A, A # L, F $ N
Conclusions:
I. L % F
II. F % A

5. **Statements:**
B * D, D $ M, F % M
Conclusions:
I. B # M
II. F % B

Directions (Qs. 6-11): In the following questions the symbols +, ×, ?, @ and $ are used with the following meanings:
$P + Q$ means P is neither smaller nor greater than Q.
$P \times Q$'means P is neither equal to nor smaller than Q.
$P ? Q$ means P is neither greater than nor equal to Q.
$P @ Q$ means P is either greater than or equal to Q.
$P \$ Q$ means P is not equal to Q.
Now, in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer
(a) if only conclusion I is true;
(b) if only conclusion II is true;
(c) if either I or II is true:
(d) if neither I nor II is true; and
(e) if both I and II are true.

6. **Statement:**
$P \$ Q, Q \times R, P + R$
Conclusions:
I. $Q \times P$
II. $P ? Q$

7. **Statement:**
$A + B, B \$ C, C ? A$
Conclusions:
I. $C \$ A$
II. $B + C$

8. **Statement:**
$Y @ Z, Z \times Q, Q \$ P$
Conclusions:
I. $Y ? Q$
II. $Y ? P$

9. **Statement:**
$E \times F, F @ L, L + N$
Conclusions:
I. $N + F$
II. $E \times L$

10. **Statement:**
$H @ J. J ? K, K \times M$
Conclusions:
I. $H @ M$
II. $M \times J$

11. **Statement:**
$M @ T, T + V, V ? E$
Conclusions:
I. $V + M$
II. $V ? M$

Directions (Qs. 12 - 16): In the following questions, the symbols @, ©, ★, $ and # are used with the following meaning:
'P @ Q' means 'P is neither smaller than nor equal to Q'.
'P © Q' means 'P is not smaller than Q'.
'P★Q' means 'P is not greater than Q'.
'P $ Q' means 'P is neither smaller than nor greater than Q'.
'P # Q' means 'P is neither greater than nor equal to Q'.
Now, in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true? Give answer
(a) if only conclusion I is true.
(b) if only conclusion II is true.
(c) if either conclusion I or II is true.
(d) if neither conclusion I nor II is true.
(e) if both conclusions I and II are true.

12. **Statements:**
Z # N, F © N, F ★ K
Conclusion :
I. K $ N
II. K @ Z

13. **Statements:**
D $ T, T © M, M # K
Conclusion:
I. M $ D
II. D @ M

14. **Statements:**
W © A, B ★ A, B @ M
Conclusions:
I. B # W
II. W $ B

15. **Statements:**
J ★ M, M $ N, N # T
Conclusions:
I. T @ J
II. T $ J

16. **Statements:**
V ★ F, F @ R, R © G
Conclusions:
I. G # V
II. G @ V

Directions (Qs. 17-21): In the following questions, the symbols #, $, @, * and © are used with the following meaning as illustrated below:
'*P* # *Q*' means '*P* is not smaller than *Q*'
'*P* $ *Q*' means '*P* is neither smaller than nor greater than *Q*'
'*P* @ *Q*' means '*P* is neither greater than nor equal to *Q*'
'*P* * *Q*' means '*P* is not greater than *Q*'
'*P* © *Q*' means '*P* is neither smaller than nor equal to *Q*'
Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are **definitely true. Give answer**
(a) if only Conclusion I is true.
(b) if only Conclusion II is true.
(c) if either Conclusion I or II is true.
(d) if neither Conclusion I nor II is true.
(e) if both Conclusions I and II are true.

17. **Statements:**
B $ *K*, *K* @ *D*, *D* # *M*
Conclusions:
I. *B* $ *M*
II. *B* @ *M*

18. **Statements:**
H @ *N*, *N* © *W*, *W* # *V*
Conclusions:
I. *H* @ *V*
II. *V* @ *N*

19. **Statements:**
J * *D*, *Q* # *D*, *Q* @ *M*
Conclusions:
I. *Q* © *J*
II. *Q* $ *J*

20. **Statements:**
F # *G*, *N* $ *G*, *N* © *T*
Conclusions:
I. *T* © *F*
II. *N* * *F*

21. **Statements:**
M © *R*, *R* @ *K* , *K* $ *T*
Conclusions:
I. *T* © *R*
II. *T* © *M*

Directions (Qs. 22-26): In the following questions the symbols @, +, ©, $, △ and ? a re used with the following meaning:
P △ Q means P is not equal to Q.
P @ Q means P is greater than Q.
P + Q means P is smaller than Q.
P © Q means P is either greater than or equal to Q.
P $ Q means P is either smaller than or equal to Q.
P ? Q means P is equal to Q.
Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer
(a) if only conclusion I is true.
(b) if only conclusion II is true.
(c) if either conclusion I or II is true.
(d) if neither conclusion I nor II is true.
(e) if both conclusions I and II are true.

22. **Statements :**
K © M, M △ R, R ? T
Conclusions:
I. K © T
II. M ? T

23. **Statements:**
B + D, D @ N, N $ H
Conclusions:
I. H © D
II. H © N

24. **Statements:**
M © K, K @ P, P $ N
Conclusions:
I. M @ N
II. M ? N

25. **Statements:**
T $ M, M ? Q, Q + R
Conclusions:
I. Q @ T
II. Q ? T

26. **Statements:**
D @ B, B $ T, T + M
Conclusions:
I. M @ B
II. T © B

Directions (Qs.27-31): In the following questions, the symbols $, ©, ×, @ and # are used with the following meanings:
P $ Q means P is not smaller than Q.
P © Q means P is neither greater than nor smaller than Q.
P @ Q means P is not greater than Q.
P × Q means P is neither smaller than nor equal to Q.
P # Q means P is neither greater than nor equal to Q.
Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer
(a) if only conclusion I is true;
(b) if only conclusion II is true;
(c) if either I or II is true;
(d) if neither I nor II is true; and
(e) if both I and II are true.

27. **Statements:**
Z $ K, K × T, T © F
Conclusions:
I. F # Z
II. Z × T

28. **Statements:**
K × B, B @ D, D # K
Conclusions:
I. B @ K
II. B # K

29. **Statements:**
N © R, R @ M, M $ J
Conclusions:
I. N © M
II. N # M

30. **Statements:**
S $ T, T @ R, R # M
Conclusions:
I. M × T
II. M© T

31. **Statements:**
H @ V, V © M, M × R
Conclusions:
I. R × H
II. H × R

Directions (Qs. 32-36): In these questions, certain symbols have been used to indicate relationships between elements as follows:
A B means A is either equal to or greater than B.
A $ B means A is equal to B.
A £ B means A is either equal to or smaller than B.
A & B means A is smaller than B.
A @ B means A is greater than B.
In each question, three statements showing relationships have been given, which are followed by **two** conclusions I & II. Assuming that the given statements are true, find out which conclusion(s) is/are **definitely true.**
Mark answer (a) if only conclusion I is true.
Mark answer (b) if only conclusion II is true.
Mark answer (c) if either conclusion I or II is true.
Mark answer (d) if neither I nor II is true.
Mark answer (e) if both conclusions I and II are true.

32. **Statements:**
S K, T & K, K B
Conclusions:
I. S $ B
II. S @ B

33. **Statements:**
Y $ Z, H $ D, Z D
Conclusions:
I. D £ Y
II. H £ Z

34. **Statements:**
M @ N, P @ R, P & N
Conclusions:
I. P £ M
II. R & N

35. **Statements:**
T & K, K B, S K
Conclusions:
I. B T
II. S £ T

36. **Statements:**
P @ R, M @ N, P & N
Conclusions:
I. N @ R
II. P & M

Directions (Qs. 37-41): In the following questions, the symbols ×, %, , @ and © are used with the following meanings as illustrated below:
'P @ Q' means 'P is neither greater than nor equal to Q'.
'P × Q' means 'P is not smaller than Q'.
'P Q' means 'P is not greater than Q'.
'P © Q' means 'P is neither smaller than nor equal to Q'.
'P % Q' means 'P is neither greater than nor smaller than Q'.
Now in each of the following questions assuming the given statements to be true, find which of the conclusions given below are **definitely true.**

37. **Statements :** J©T, T B, B@R
Conclusions :
I. J@R
II. R%T
III. J@B
(a) None follows
(b) Only I follows
(c) Only II follows
(d) Only II and III follow
(e) Only I and II follow

38. **Statements :** T M, K@M, K×Z,
Conclusions :
I. T@Z
II. Z@M
III. M%Z
(a) None follows
(b) Only II follows
(c) Only either II or III follows
(d) Only I follows
(e) All follow

39. **Statements :** K N, N%T, R@T
Conclusions :
I. K@R
II. T©K
III. R%K
(a) All follow
(b) Only II follows
(c) Only either I or III and II follow
(d) Only either I or II and III follow
(e) None follows

40. **Statements :** H©M, M×D, T@D
Conclusions :
I. T@M
II. H©D
III. H%D
(a) All follow
(b) Only I and III follow
(c) Only II and III follow
(d) Only I and II follow
(e) None of these

41. **Statements :** W×M, M©F, D F
Conclusions :
I. D@W
II. M©D
III. F@W
(a) None follows
(b) Only I and II follow
(c) Only II and III follow
(d) Only I and III follow
(e) All follow

Directions (Qs. 42-45) : In the questions given below, certain symbols are used with the following meanings:
P $ Q means P is neither equal to nor smaller than Q.
P © Q means P is not smaller than Q.
P * Q means P is neither greater nor smaller than Q.
P # Q means P is neither greater than nor equal to Q.
P @ Q means P is not greater than Q.
Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer
(a) if only conclusion I is true.
(b) if only conclusion II is true.
(c) if either conclusion I or II is true.
(d) if neither conclusion I nor II is true.
(e) if both conclusions I and II are true.

42. **Statements :**
M # K, K * D, D @ P
Conclusions :
I. M @ P
II. M *P

43. **Statements :**
W © T, T $ M, B # M
Conclusions :
I. W $ B
II. M # W

44. **Statements :**
H * D, D # R, R © N
Conclusions :
I. N * H
II. N $ H

45. **Statements:**
Z @ R, R © D, D # T
Conclusions:
I. D # Z
II. Z # T

Directions (Qs. 47-50) In these questions, relations between different elements is shown in the statements. These statements are followed by to conclusions.

Give answer
(a) Only Conclusion I follows
(b) Only Conclusion II follows
(c) Either Conclusion I or II follows
(d) Neither Conclusion I nor II follows
(e) Both Conclusions I or II follow

46. **Statements**
$N = P, P \le F, F \ge L, L = K$
Conclusions
I. $F = K$ II. $F > K$

47. **Statements**
$Z > T, T < M, M \le J$
Conclusions
I. $T = J$ II. $J > Z$

48. **Statements**
$Q = Z, C \ge G, G \ge Q, Q \ge R, J \ge C$
Conclusions
I. $G \ge Z$ II. $C \ge R$

49. **Statements**
$A > B > C, D > E > F, D > C$
Conclusions
I. $E > C$ II. $F > B$

50. **Statements**
$K > L, K > M, M \ge N, N > O$
Conclusions
I. $O > M$ II. $O > K$

Directions (Qs. 51-55) In these questions, relationship between different element is shown in the statements. These statements are followed by two conclusions.
Give answer
(a) If only Conclusion I follows
(b) If only Conclusion II follows
(c) If either Conclusion I or II follows
(d) If neither Conclusion I nor II follows
(e) If both Conclusions I and II follow

51. **Statements**
$P \ge Q = R > S > T$
Conclusions
I. $P \ge T$ II. $T < Q$

52. **Statements**
$L \le M < N > O \ge P$
Conclusions
I. $O < M$ II. $P \le N$

53. **Statements**
$A > B, B \ge C = D < E$
Conclusions
I. $C < A$ II. $D \le B$

54. **Statements**
$H > J = K, K \ge L, L > T, T < V$
Conclusions
I. $K < T$ II. $L \le H$

55. **Statements**
$A \le B = C, D > C = E$
Conclusions
I. $E \ge A$ II. $A < D$

56. Which of the following expression will be true if the expression $P > Q = R \ge S < T \le U$ is definitely true?
(a) $P \ge T$ (b) $Q > T$
(c) $S < P$ (d) $U = R$
(e) $Q < U$

57. Which of the following expression will be false if the expression $A < B \le C = D \ge E$ is definitely true?
(a) $C > A$ (b) $E \le C$
(c) $D > B$ (d) $C \ge E$
(e) $B \le D$

58. Which of the following expression will be true if the expression $M \ge P < N = O \ge R$ is definitely true?
(a) $M > R$ (b) $P > O$
(c) $R < P$ (d) $P \ge R$
(e) $O < M$

59. Which of the symbols should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expression in such a manner that makes the expression P < K as well as O ≤ K definitely true?
"K_L_O_P_Q"
(a) ≥ , =, >, ≥ (b) = , =, >, ≥
(c) ≥ , >, ≥ , > (d) > , =, ≥ , ≥
(e) >, ≥ , ≥ , ≥

60. Which of the following should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expression in such a manner that makes the expression D < A definitely false.
_>_=_≤_<_
(a) E, B, C, D, A (b) A, C, D, B, E
(c) C, E, A, B, D (d) B, D, E, C, A
(e) C, B, D, E, A

Directions (Qs. 61-65): In the given questions, assuming the given statement to be true, find which of the given four conclusions numbered I, II, III and IV is/are definitely true and give your answer accordingly.

61. **Statements:**
D ≤ A < C, N ≥ B = E, N = F > D
Conclusions:
I. F ≥ E
II. C < D
III. N ≥ A
IV. B ≤ F
(a) Only I is true
(b) Only III is true
(c) Only II and IV are true
(d) Only I and IV are true
(e) None of these

62. **Statements:** B > E ≥ L, N = G ≥ B, M ≤ P < L
Conclusions:
I. G ≥ L
II. E > P
III. B > M
IV. M < N
(a) Only I, II and III are true
(b) Only II, III and IV are true
(c) Only III and IV are true
(d) Only I is true
(e) None of these

63. **Statements:** H < A ≤ V < L, M = H, J > K ≥ M
Conclusions:
I. L > M
II. A ≤ K
III. J > V
IV. K < L
(a) Only II and III are true
(b) Only I and II are true
(c) Only III and IV are true
(d) Only I, II and IV are true
(e) None of these

64. **Statements:** E ≤ N ≥ T ≤ R, P ≥ Q = R
Conclusions:
I. P ≥ T
II. Q ≤ N
III. R ≥ E
IV. N ≤ P
(a) Only I is true
(b) Only II and II are true
(c) Only II and IV are true
(d) Only I and IV are true
(e) None of these

65. **Statements:** R > S = T ≤ U, P = K > M ≥ U
Conclusions:
I. R > K
II. M ≥ T
III. P > U
IV. S ≤ M
(a) Only II and IV are true
(b) Only II, III and IV are true
(c) Only I and III are true
(d) All I, II, III and IV are true
(e) None of these

Directions (Qs. 66-70) : Read each statement carefully and answer the following questions.

66. Which of the following expressions will be true, if the expression R > O = A > S < T is definitely true ?
(a) O > T (b) S < R
(c) T > A (d) S = O
(e) T < R

67. Which of the following symbols should replace the question mark (?) in the given expression in order to make the expressions 'P > A' as well as 'T < L' definitely true?
P > L ? A ≥ N = T
(a) ≤ (b) >
(c) < (d) ≥
(e) Either (a) and (b)

68. Which of the following symbols should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expression in such a manner that makes the expressions 'B > N' as well as, 'D ≤ L' definitely true ?
B – L – O – N – D
(a) =, =, ≥, ≥ (b) >, ≥, =, >
(c) >, <, =, ≤ (d) >, =, =, ≥
(e) >, =, ≥, >

69. Which of the following should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expression in such a manner that makes the expression 'A < P' definitely false ?
– ≤ – ≤ – ≥
(a) L, N, P, A (b) L, A, P, N
(c) A, L, P, N (d) N, A, P, L
(e) P, N A, L

70. Which of the following symbols should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expression in such a manner that makes the expression 'F > N' and 'U > D' definitely false ?
F – O – U – N – D
(a) <, <, >, = (b) <, =, =, >
(c) <, =, =, < (d) ≥, =, =, ≥
(e) >, >, =, <

CHAPTER 12

Input-Output

INTRODUCTION

Problems related to input-output are frequently asked questions in various graduate level competitive examinations. They are not very tough stuff but take a good deal of time to be solved or sometimes students do not take attempt to solve them because of time consuming impression of such type of questions. But proper understanding of the subject makes you believe that such problems are not as tough and time consuming as they seem.

CONCEPT OF INPUT-OUTPUT PROBLEMS

In such problems:

(a) It is imagined that there is some kind of computer/word processing machine.

(b) An input is given to the computer/word processing machine

(c) The computer/word processing machine performs repeated operations as per a certain pattern to give different output in different steps.

Let us see the following input given to a word processing machine.

Input: Ram Shyam Mango Apple Ravi Orange

Now, just suppose that the word processing machine starts operation with a pre-fixed pattern in which first two words interchange their places while rest of the words remain at the same places then, we get

1st output:

Shyam Ram Mango Apple Ravi Orange

If machine does not stop and goes on performing further operations in the same manner for rest of the words then,

2nd output:

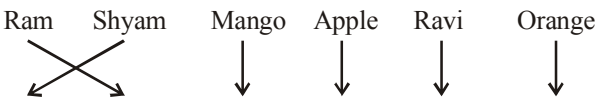
Shyam Ram Apple Mango Ravi Orange

3rd output:

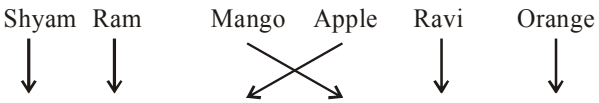
Shyam Ram Apple Mango Orange Ravi

To get it more clearly just see the following presentation:

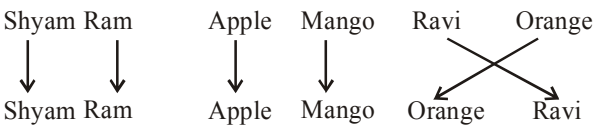
Input:



1st output:



2nd output:



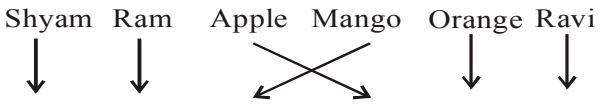
3rd output:

It is clear from the presentation given above that for the 1st output, 1st two words (Ram and Shyam) interchange their places; for the 2nd output the next two words (Mango and Apple) interchange their places; for the 3rd output the last two words of the given input (Ravi and Orange) interchange their positions.

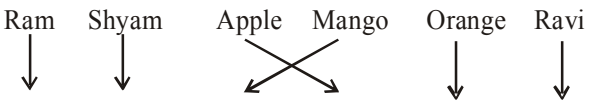
In fact, the machine will continue to perform further operations till it is stopped. Suppose the machine stops after 6 operations. Then three more outputs will be produced by it.

Now, we can start watching from 3rd output that how machine gives the another three outputs(4th, 5th and 6th). Let us see :,

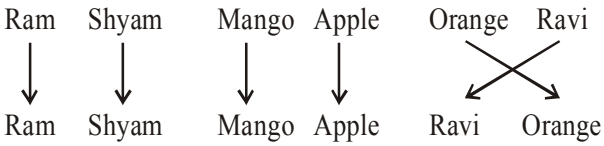
3rd output:



4th output:



5th output:



6th output:

Point to be noted that final output will be that output where the machine stops. Here, the machine stops after producing 6th output. Therefore, here, 6th output will be last or final output.

In the above example, we get clear picture of a problem that is solved by shifting of words as per a fixed pattern. Here 1st two words mutually shift their places in operation first; the next two words mutually shift their places in operation 2nd, last two words mutually shift their places in operation 3rd and further operation goes on in the same manner. Thus, we come to the conclusion that this is the type of problem which can be called as "**Problem of Shifting**".

Now, let us go ahead with the word processing machine that performs a different type of operation in which machine arranges the words given in the input as per the arrangement order of those words in the dictionary. In another words, the words given in the input, will be arranged in such a way that the words coming 1st in the dictionary will be put 1st in the 1st output pushing the remaining words rightwards without changing their order; the

word coming 2nd in the dictionary will be put at 2nd place in the 2nd output pushing the remaining words rightwards without changing their order; the word coming third will be put at third place in the 3rd output pushing the ramaining words to the right without changing their order. We goes on in the same manner to get further outputs till the machine stops. Suppose we have the following input.

Input: Left right above height dark sight. We know that the words given in the dictionary are arranged in alphabetical order. In the given input 'above' is the word that will come 1st in the dictionary. Then,

1st Output: above left right height dark sight. After the word 'above' the next word coming in the dictionary is 'dark'. Therefore, 'dark' will be but at 2nd place in the 2nd output pushing the remainig words left', 'right' 'height' & 'sight' towards right. Then,

2nd Output: above dark left right height sight. For the 3rd output the machine will pick up the word that comes after 'above' & 'dark' in the dictionary. Such word is 'height' and thus, machine put this word at the 3rd place in the 3rd output pushing the words 'left' 'right' & 'sight' rightwards. Therefore,

3rd Output: above dark height left right sight. After 3rd output, we see that the machine does not need to perform further operations as all the words written in the 3rd output have been arranged in alphabetical order. Therefore, machine stops here producing 3rd output as the final step.

In fact this example gives a clean picture of arrangement of words in alphabetical orders. But point to be noted that same kind of arrangement can be seen when numbers are given in place of words. In such cases, the numbers given in the input get arranged in increasing or decreasing order through the operations performed by a number processing machine. Thus, we come to the conclusion that this is the type of problem that can be classified as "**Problem of Arrangement**".

Important note

Shifting operation to be performed by a machine goes on endlessly but operation of arrangement ends as soon as the intended result is achieved.

Step I:	Rmsh	st	Mng	Tng
Step II:	ae	eea	ao	ao
Step III:	mesh	exta	ngo	ngo
Step IV:	Rame	see	Man	Tan

And so on.....

Have you noticed here something? Here the machine performs some random operations and the explanations are as follows:

Step I: Vowels from all words of input disappear.

Step II: Consonants from all words of input disappear.

Step III: 1st two letters from all words of input disappear.

Step IV: Last two letters from all words of input disappear.

After discussing this kind of input-output problem we can conclude:

(a) For every step machine follows a different rule.

(b) This is not a problem of shifting or arrangement or mathematics.

Then, what kind of problem is it? In fact, this is the input-output problem that can be put under the category of: **Miscellaneous.**

Note.

The above discussed problem is words/letters based. But this kind of miscellaneous problem can be digits/numbers based also.

Now, we have four types of problems:

(i) Problems of shifting

(ii) Problems of arrangement

(iii) Problems of mathematical operation

(iv) Miscellaneous.

Now, this is the time to discuss all the form types of input-output problems separately and in more explanatory way.

Step III:	copy	pencil	ruber	book	pen	stop.
Step IV:	book	pencil	ruber	copy	pen	stop.
Step V:	copy	pencil	ruber	book	pen	stop.

Suppose that after the step V the machine stops and thus, step V is the final output. Now, the question can be asked in the following format:

Q. 1 What will be the 3rd step of the following input?

Input : One six ten four nine two

Q.2 If the 4th step of an input is:

"alone, tone known shown phone tone". Find out the step V

Q. 3 Suppose step III of an input is :

Name Shame Game Fame Dam Ram ". Find the input.

As we know that this is the Problem of Shifting and as per the rule it is clear that 1st and 4th words mutually interchange their place in every step as follows:

from input to step I: book and copy mutually change their places.

from step I to step II: copy and book mutually change their places.

from step II to step III: book and copy mutually change their places.

from step III to step IV: copy and book mutually change their places.

from step IV to step V: book and copy mutually change their places.

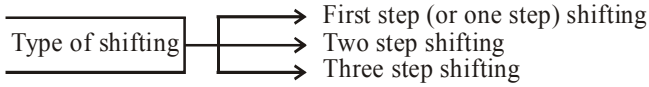
Now, we can do the solution:

Solution 1 : (As per the rule 'one' and 'four' mutually change their places).

Input:	one	six	ten	four	nine	two.
Step I:	four	six	ten	one	nine	two.
Step II:	one	six	ten	four	nine	two.
Step III:	four	six	ten	one	nine	two.

PROBLEM OF SHIFTING

We know that in such type of problem a word/number processing machine generate output through shifting. Shifting does mean an operation in which words or numbers of a given input give outputs in different steps through shifting their place to different place as per a fixed pattern.



(a) First Step Shifting:

In such type of shifting, only a single operation goes on repeatedly. For example, just see the following.

Input:	Ravi	works	Hari	talks
Step I:	works	Ravi	Hari	talks
Step II:	Ravi	works	Hari	talks
Step III:	works	Ravi	Hari	talks.

Have you noticed what happens here? Here, the same operation takes place again and again. It does mean that in every output only two words (Ravi & works) takes participation in shifting. In step I Ravi and works mutually interchange their place; in step II Works and Ravi mutually interchange their place; in step III again Ravi and works mutually interchange their place and the same operation will go on repeatedly, if we go ahead for further steps like step IV, step V, step VI, etc.

After having a concept of first step shifting let us solve a problem when the word processing machine gives outputs as follows:

Input :	book	pencil	ruber	copy	pen	stop
Step I :	copy	pencil	ruber	book	pen	stop
Step II :	book	pencil	ruber	copy	pen	stop

Solution 2

Step IV:	alone	tone	known	shown	phonezone	

Here as per the given pattern 'alone' and 'shown' mutually change their place in every step.

Thus,

Step V :	shown	tone	known	alone	phone	zone

Solution 3 Given that

Step III :	Name	Shame	Game	Fame	Dam	Ram

As per the given pattern 'Name' & 'Fame' mutually interchange their places then,

Step II :	Fame	Shame	Game	Name	Dam	Ram
Step I :	Name	Shame	Game	Fame	Dam	Ram
Input :	Fame	Shame	Game	Name	Dam	Ram

The examples so far discussed in first step shifting are very simple as only two words participate in every operations. But the problems related to first step shifting may be more complex when more than two words participate in each operation. Therefore, to identify such type of shifting the students must remember particular rule that is given below :

Identification rule:

0 to 1 = 1 to 2 = 2 to 3 = 3 to 4 =.....

where,

0 = Input
1 = Step I
2 = Step II
3 = Step III
4 = Step IV
and so on

Further. 0 to 1 = changes from input to step I.
1 to 2 = changes in going from step I to step II.
2 to 3 = changes in going from step II to step III.
3 to 4 = changes in going from step III to step IV and so on.

If we go through the examples discussed so far under this category, we find that they follow this rule. Let us discuss another example that is more complex than those discussed so far. Just see

Input:	Flight	Sight	Night	White	Fight	Right.
Step I:	Right	Sight	White	Night	Fight	Flight.
Step II:	Flight	Sight	Night	White	Fight	Right.
Step III:	Right	Sight	White	Night	Fight	Flight.
Step IV:	Flight	Sight	Night	White	Fight	Right.
Step V:	Right	Sight	White	Night	Fight	Flight.

What we see here? Here we, see that in every operation 'Flight and Right' interchange their places and 'Night and White' interchange their places. Thus, the change in every further step is as same as the change take place in the previous step.

It does mean 0 to 1 = 1 to 2 = 2 to 3 = 3 to 4 = 4 to 5.

Note:

It is important to note that in first step shifting all even steps are equal and all odd steps are equal. Apart from this, all even steps are equal to input. In another words, "Input = Step II = Step IV = Step VI....and so on and "Step I = Step III = Step V...and so on.

(b) Two Step Shifting:

In such type of shifting two operations take place.

Let us see the following example:

Input:	Ram	Walks	Hari	Talks.
Step I:	Walks	Ram	Hari	Talks.
Step II:	Walks	Ram	Talks	Hari.
Step III:	Ram	Walks	Talks	Hari.
Step IV:	Ram	Walks	Hari	Talks.

Here, while going from input to step I only two words (Ram and Walks) interchange their places learning the remaining two words (Hari and Talks) at the same position they have occupied in the input and while going from step 1 to step II only the last two words (Hari and Talks) interchange their places learning the remaining two words (Walks and Ram) at the same position they have occupied in the step I. These two operations are being performed alternately in further steps. This does mean that the change in going from input to step I is different from the change in going from step I to step II. But the change from input to step I is the same as the change from step II to step III while the change from step I to step II is same as the change from step III to step IV.

After having the concept of two step shifting, let us solve a problem when a word processing machine gives outputs as follows:

Input:	come	what	may	say	day	gone
Step I:	gone	what	may	say	day	come
Step II:	gone	day	may	say	what	come
Step III:	come	day	may	say	what	gone
Step IV:	come	what	may	say	day	gone
Step V:	gone	what	may	say	day	come

Suppose that after the step V the machine stops and thus step V is the last and final input given by the machine. Now, the question can be asked in the following format.

Q. 1 What will be the 3rd step of the following input?

Input: No Go Show Toe Know So

Q. 2 If step IV of an input is as follows:

Step IV: Line Shine Nine Mine Wine Dine

What step will be the following arrangement?

Arrangement: Dine Shine Nine Mine Wine Line

Q.3 If the machine goes up to step VII which is as follows:

Step VII: Cow Now Dog Rat Lion Tiger

Find out the III step.

As we know that this is a problem of two step shifting, and as per the rule it is clear that in 1st step first and last word (come and gone) interchange their places learning the other words at the same positions they have occupied in the input. In the step II the other two words (what and day) interchange their places learning the remaining words at the same positions they have occupied in the step I. These two operations are being performed alternately as given below:

From input to step I: come and gone interchange places.

From step I to step II: what and dry interchange places.

From step II to step III: gone and come interchange places.

From step III to step IV: day and what interchange places

From step IV to step V: come and gone interchange places.

Now, we can do the solutions:

Solution 1

Input:	No	Go	Show	Toe	Know	So
Step I:	So	Go	Show	Toe	Know	No
Step II:	So	Know	Show	Toe	Go	No
Step III:	No	Know	Show	Toe	Go	So

Solution 2

As per the pattern the 1st and last word of step IV (come and gone) interchange their places in step I and step V learning the remaining words at the same positions they have occupied in step IV. This makes step I and step V equal. Further the given pattern also makes step IV equal to input. Therefore, applying the same pattern the given step IV ("Line Shine Nine Mine Wine Dine") will be the input and the first word 'Line' and the last word 'Dine' of this input interchange their places to give outputs as Step I = Step V. Thus, the given arrangement ("Dine Shine Nine Mine Wine Line) is step I or step V.

Solution 3

Here, the machine follows the pattern given below:

Input = Step IV

Step I = Step V

Step II = Step VI

Step III = Step VII

Step IV = Step VIII

Step V = Step IX

and so on....

Therefore, following this rule given step VII ("Cow Now Dog Rat Lion Tiger") will be equal to step III and this

step III: Cow Now Dog Rat Lion Tiger" is your answer.

The examples discussed so far, related to two-step shifting, are simple ones. But more complex problems related to this type of shifting may appear before you. Therefore, to identify such type of problems a particular rule is given below:

Identification rule:

(a) 0 to 1 = 2 to 3 = 4 to 5 .....and

(b) 1 to 2 = 3 to 4 = 5 to 6.....

where

0 = Input

1 = Step I

2 = Step II

3 = Step III

4 = Step IV

5 = Step V

and so on.

Further, 0 to 1 = changes in going from input to step I.

1 to 2 = changes in going from step I to step II.

2 to 3 = changes in going from step II to step III.

3 to 4 = changes in going from step III to step IV.

4 to 5 = changes in going from step IV to step V.

5 to 6 = changes in going from step V to step VI.

and so on.

If we go through the examples discussed so far under this category we find that they follow this rule. Let us see another example that is more complex than those discussed so far. Just see the following:

Input:	catch	an	fire	police	team	and	sea
Step I:	sea	an	police	fire	team	and	catch
Step II:	an	police	catch	team	fire	sea	and
Step III:	and	police	team	catch	fire	sea	an
Step IV:	police	team	an	fire	catch	and	sea.

PROBLEMS OF ARRANGEMENT

In the earlier part of this chapter (input-output chapter), we have already discussed what kind of problems are called problems of arrangement. Let us discuss it further:

WHAT ARE THE POSSIBLE WAYS OF ARRANGEMENTS?

1. Word Arrangement from Left Side:

Let us see the following example:

Input:	mango	tango	orange	banana	pear
Step I:	banana	mango	tango	orange	pear
Step II:	banana	mango	orange	tango	pear
Step III:	banana	mango	orange	pear	tango

Here, we start arrangement from the word that comes 1st in the dictionary; then comes the word coming 2nd in the dictionary; then comes the word coming 3rd in the dictionary and so on. In this case, the arrangement start from left side. This is the reason in step I banana comes 1st as it comes 1st in the dictionary. In the 2nd step orange

comes at 3rd place because after the arrangement of step I the next word coming in the dictionary is mango but it get arranged automatically and hence there is no need to arrange it in step II. This is the reason after arranging banana in step I, we directly come to the word orange (coming 3rd in the dictionary) in step II. In the 3rd step we arrange the word 'pear' (coming 4th in the dictionary) and the word tango get arranged automatically.

Let us see the another format given below:

Input:	mango	tango	orange	banana	pear
Step I:	tango	mango	orange	banana	pear
Step II:	tango	pear	mango	orange	banana
Step III:	tango	pear	orange	mango	banana

What have you noticed here? In fact, here the arrangement has been done in reverse order. In other words, the last word coming in the dictionary comes 1st from left in the step I. In step II, the 2nd last word coming in the dictionary comes 2nd from left and the arrangement goes on further in the same manner.

2. Word Arrangement from Right:

Just see the following example :

Input:	Name	Fame	Game	Shame	Jam
Step I:	Name	Game	Shame	Jam	Fame
Step II:	Name	Shame	Jame	Game	Fame
Step III:	Shame	Name	Jam	Game	Fame

In this case, the arrangement starts from right side. The word coming 1st in the dictionary comes at the 1st position from right. At the 2nd position from right comes the word coming 2nd in the dictionary and the process goes on till the arrangement gets completed. In the above given example, 'Fame' is the 1st word coming in the dictionary and hence it comes at the 1st position from right in the step I. In the step II the 2nd word coming in the dictionary (Game) comes at the 2nd position from right. Point to be noted that the word coming third in the dictionary will come at the 3rd position from right and this word is 'Jam'. But 'Jam' automatically get arranged as per the given pattern when we arrange the word 'Game' in II step. This is the reason why we don't arrange 'Jam' in the third step and jump directly to arrange the word. 'Name' that comes 4th in the dictionary. 'Name' occupies 4th position from right and the word 'Shame' automatically get arranged in the 3rd step. Hence, the word 'Shame' does not need to get arranged.

Let us see another format given below:

Input:	Name	Fame	Game	Shame	Jam
Step I:	Name	Fame	Game	Jam	Shame
Step II:	Fame	Game	Jam	Name	Shame

What you have noticed here? In this case, the arrangement does start from right side but here the last word coming in the dictionary comes 1st from right and in this case, 'Shame' is the such word which comes last in the step I pushing rest of the word leftward. In step II the word coming 2nd last in the dictionary occupies the 2nd position from right pushing the words 'Fame', 'Game' and 'Jam' to the left. The rest of the words (Fame, Game and Jam) automatically get arranged in the step II. Here, there is no need to go for further steps.

3. Word Arrangement from the Left-Right Alternate:

Let us see the format given below:

Input:	Sachin	is	a	great	cricket	player
Step I:	a	Sachin	is	great	cricket	player
Step II:	a	is	great	cricket	player	Sachin
Step III:	a	cricket	is	great	player	Sachin
Step IV:	a	cricket	great	is	player	Sachin

Here, the arrangement is made by putting the first word at 1st place, then alphabetically last word at last place, then alphabetically second word at second place from left and the further arrangements goes on in the same manner. In the other words, are positioned from the left and from the right alternately. In the step I the word coming 1st in the dictionary is 'a' and it takes 1st position from left. In the step II, the last word coming alphabetically is Sachin and it takes last position (1st from right). In step III, the word coming 2nd in dictionary is 'cricket' that comes at 2nd position from left. In step IV, the word coming 3rd last in the dictionary takes the 3rd position from right. After the step IV, all the words get arranged in alphabetical order. Point to be noted that after step IV, there is no need to arrange the word 'great' as it get arranged automatically is step IV.

Let us see the another format given below:

Input:	Sachin	is	a	great	cricket	player
Step I:	is	a	great	cricket	player	Sachin
Step II:	a	is	great	cricket	player	Sachin
Step III:	a	is	cricket	great	player	Sachin
Step IV:	a	cricket	is	great	player	Sachin

Have you noticed here something? Here,the arrangement starts from right side. In step I, the last word (Sachin) that comes last alphabetically takes the last (1st from right) position. In step II, the word coming 1st alphabetically (the word is 'a') comes at the 1st position from left. As the 2nd last word (player) alphabetically has already taken 2nd position from right, the 3rd last word (great) alphabetically will occupy the third position from right in step III. In the 4th step, the word (cricket) coming 2nd alphabetically comes at the 2nd position from left and the word (is) coming 3rd alphabetically get arranged automatically occupying the 3rd position from left.

4. Arrangement in Increasing or Decreasing Order:

Just have a look at the arrangement format given below:

Input:	25	17	18	58	100	35
Step I:	17	25	18	58	100	35
Step II:	17	18	25	58	100	35
Step III:	17	18	25	35	58	100

This arrangement gives a clear idea of arrangement of numbers in increasing order. In step I, the smallest number (17) comes at the 1st position from left pushing the remaining to the right. In step II, the 2nd smallest number (18) comes at 2nd position from left pushing the remaining number to the right. In step III, the 4th smallest number (35) takes 4th position from left and the other two numbers 58 and 100 get arranged automatically.

The same arrangement take place in the following format also:

Input:	25	17	18	58	100	35
Step I:	25	17	18	58	35	100
Step II:	25	17	18	35	58	100
Step III:	17	18	25	35	58	100

This format gives the clear picture of arrangement in which the arrangement start from right side. In step I, the largest number comes at the 1st position from right; in 2nd step the 2nd largest number comes at the 2nd position from right; in the step III, there is no need to arrange the 3rd largest number (35) as it get arranged automatically in step II. Hence in 3rd step 4th largest number (25) comes at the 4th position from right and the other two number (17 and 18) do not to get arranged in further steps as they automatically get arranged in step III.

Now, let us see decreasing order arrangement:

Input:	25	17	18	58	100	35
Step I:	100	25	17	18	58	35
Step II:	100	58	25	17	18	35
Step III:	100	58	35	25	17	18
Step IV:	100	58	35	25	18	17

The same arrangement can take place from right side (or in the reverse order) as follow:

Input:	25	17	18	58	100	35
Step I:	25	18	58	100	35	17
Step II:	25	58	100	35	18	17
Step III:	58	100	35	25	18	17
Step IV:	100	58	35	25	18	17

5. Number Arrangment from Left-Right Alternate:

Like words left-right alternate arrangement, number arrangement also takes place. The process of this arrangement is exactlly the same as the arrangement takes place in case of words. just see the following cases:

Input:	100	125	26	10	15	35
Step I:	10	100	125	26	15	35
Step II:	10	100	26	15	35	125
Step III:	10	15	100	26	35	125
Step IV:	10	15	26	35	100	125

Here, the smallest number (10) takes 1st position from left in step I. In step II the largest number takes the last (1st from right) position. Again in step III the 2nd smallest number (15) comes at the 2nd position from left. In the step IV, the 2nd largest number (100) comes at the 2nd position from right and the remaining number (26 and 35) get arranged automatically.

Case II :

Input:	100	125	26	10	15	35
Step I:	100	26	10	15	35	125
Step II:	10	100	26	15	35	125
Step III:	10	26	15	35	100	125
Step IV:	10	15	26	35	100	125

In case II, the arrangements take place in the same way as the arrangements take place in case I. But the difference here is that case I is a left-right arrangement and case II is the right-left arrangement. In case II, the arrangement starts with the largest number (125) coming at the 1st position from right and this is step I. In step II, the smallest number (10) comes at the 1st position from left. In step III the 2nd largest number (100) comes at the 2nd position from right. In step III, the third largest number (35) automatically comes at the 3rd position from right. In 4th step, the 2nd smallest number (15) comes at the 2nd position from left and 26 get arranged automatically coming at 3rd position from left.

***Note*:** Left-right (or right-left) arrangement of numbers also take place in the same manner when numbers are arranged in decreasing order.

6. Arrangement of Words and Numbers Simultaneously:

Just see the following outputs produced by a word and number machine.

Case I

Input:	50	32	Vandana	Prerna	Aradhna	100
Step I:	32	50	Vandana	Prerna	Aradhna	100
Step II:	32	Aradhna	50	Vandana	Prerna	100
Step III:	32	Aradhna	50	Prerna	Vandana	100
Step IV:	32	Aradhna	50	Prerna	100	Vandana

In such case, numbers and words get arranged alternately. In step I, the smallest number (32) comes at the 1st position from left pushing the remaining members of input towards right. In the step II, the word coming 1st alphabetically (that is the word 'Aradhna') takes the 2nd position from left pushing the remaining member rightward. Point to be noted that the 2nd smallest number automatically comes at the third position from left while arranging the word 'Aradhna' and hence, there is no need to arrange the 2nd smallest number '50'. This is the season that in step III, the word (Prerna) coming 2nd alphabetically comes at the 4th position from left pushing the other members to the right. In step IV, the largest number (100) occupies the 5th position from left and the word (Vandana) coming last alphabetically comes at last position automatically finishing the complete arrangement.

Let us see some other cases of this type:

Case II:

Input:	50	32	Vandana	Prerna	Aradhna	100
Step I:	100	50	32	Vandana	Prerna	Aradhna
Step II:	100	Vandana	50	32	Prerna	Aradhna
Step III:	100	Vandana	50	Prerna	32	Aradhan

In this case, largest number and the word coming last alphabetically get arranged alternately. Then the 2nd longest number and the word coming 2nd last alphabetically get arranged alternately and the process goes on till the arrangements of all the numbers and words get completed. In this case arrangement completes in step III.

Case III:

Input:	50	32	Vandana	Prerna	Aradhna	100
Step I:	Aradhna	50	32	Vandana	Prerna	100
Step II:	Aradhna	32	50	Vandana	Prerna	100
Step III:	Aradhna	32	Prerna	50	Vandana	100

In this case, arrangement starts with the word coming 1st alphabetically and such word is 'Aradhna' that comes at the 1st position from left is step I. In step II, the smallest number (32) comes at the 2nd position from left. Then, in step III, the word coming 2nd alphabetically comes at the 3rd position from left and all the other members get arranged automatically.

Case IV:

Input:	50	32	Vandana	Prerna	Aradhna	100
Step I:	Vandana	50	32	Prerna	Aradhna	100
Step II:	Vandana	100	50	32	Prerna	Aradhna
Step III:	Vandana	100	Prerna	50	32	Aradhna
Step IV:	Vandana	100	Prerna	50	Aradhna	32

In this case, word coming last alphabetically comes 1st from left in step I and such word is 'Vandana'. In step II, the largest number (100) comes at the 2nd position from left. In step III, the word coming 2nd last alphabetically occupies the 3rd position from left, and such word is 'Prerna'. As the 2nd largest number (50) automatically get arranged as per the pattern going on and hence this is not needed to arranged in step IV. This is the reason that in step VI, the word coming Ist alphabetically comes at the 5th position from left and such word is 'Aradhna'. The smallest number (32) get arranged automatically coming at the last position from left in step IV. Thus, it is clear that in this case the word coming lst alphabetically and the greatest number get arranged alternately in 1st two steps; then 2nd last word alphabetically and 2nd largest number get arranged alternately finishing the whole arrangement in step IV.

Case V:

Input:	50	32	Vandana	Prerna	Aradhna	100
Step I:	32	50	Vandana	Prerna	Aradhna	100
Step II:	32	Vandana	50	Prerna	Aradhna	100
Step III:	32	Vandana	50	Prerna	100	Aradhna

In this case, the smallest number comes at the 1st position from left in step I and such number is 32. In step II, the word (Vandana) coming last alphabetically occupies the 2nd place from left. In the 2nd step the 2nd smallest number (50) takes the 3rd position from left automatically and also the word coming 2nd last alphabatically takes the 4th position from left automatically. Hence, there is no need to arrange '50' and 'Prerna'. In the III step the largest number (100) occupies the 5th position from left completing the whole arrangement.

Case VI:

Input:	50	32	Vandana	Prerna	Aradhna	100
Step I:	100	50	32	Vandana	Prerna	Aradhna
Step II:	100	Aradhna	50	32	Vandana	Prerna
Step III:	100	Aradhna	50	Prerna	32	Vandana

In this case, the logic is that the greatest number (100) comes at the 1st position from left in step I. In step II the word coming 1st alphabetically takes the 2nd position from left and the 2nd largest number (50) gets arranged automatically. Hence, in step III, we direct arrange the word coming 2nd last alphabetically (that word is 'Prerna') occupies the 4th position from left and the other two members (32 and 'Vandana') get arranged automatically finishing the whole arrangement.

7. Arrangement Based on the Number of Letters in Words:

Just have a look at the following patterns:

Case I :

Input:	let	pattern	love	fried	be	mature
Step I:	be	let	pattern	love	fried	mature
Step II:	be	let	love	pattern	fried	mature
Step III:	be	let	love	fried	pattern	mature
Step IV:	be	let	love	fried	mature	pattern

Here, the words get arranged as per increasing number of letters. In other words, the word having least number of letters comes 1st from left in step I and such word is 'be'. The word 'let' is bigger than 'be' and smaller than other words letterwise and hence, it takes 2nd position from left but it gets arranged automatically when the word 'be' is arranged in step I. In 2nd step, the word 'love' comes at the 3rd position from left as it is bigger than word 'let' letterwise. In step III, the letterwise bigger word (fried) than love comes at the fourth position from left. Similarly, mature comes at the 5th position from left and pattern comes at the last position automatically while arranging the word 'mature'.

Case II :

Input:	let	pattern	love	fried	be	mature
Step I:	pattern	let	love	fried	be	mature
Step II:	pattern	mature	let	love	fried	be
Step III:	pattern	mature	fried	let	love	be
Step IV:	pattern	mature	fried	love	let	be

In this case, the words get arranged in decreasing order in terms of letters. In other words, the word having the largest number of letters comes 1st from left; then comes the word having 2nd largest number of letters; then comes the word having 3rd largest number of letters and the process goes on till the word having the least number of letters occupies the last position from left.

Case III:

Input:	let	pattern	gate	a	set	be	hope
Step I:	a	let	pattern	gate	set	be	hope
Step II:	a	be	let	pattern	gate	set	hope
Step III:	a	be	let	set	pattern	gate	hope
Step IV:	a	be	let	set	gate	pattern	hope
Step V:	a	be	let	set	gate	hope	pattern

Have you noticed something here? Here, the words get arranged in increasing order of litters. But when it comes to the case of two or more words having equal number of letters the priority is given alphabetically. It does mean that the word coming 1st as per the alphabet will be put before the word coming 2nd. Similarly, the word coming 2nd alphabetically will be put before the word coming third. This is the reason why 'let' has been put before 'set' and 'gate' has been put before 'hope'.

Case IV:

Input:	let	pattern	gate	a	set	be	hope
Step I:	pattern	let	gate	a	set	be	hope
Step II:	pattern	hope	let	gate	a	set	be
Step III:	pattern	hope	gate	let	a	set	be
Step IV:	pattern	hope	gate	set	let	a	be
Step V:	pattern	hope	gate	set	let	be	a

In this case, the words get arranged in decreasing order of letters. But when it comes to the case of two or more words having equal number of letters the priority is given to the word that comes later alphabetically. It does mean that the word coming 1st alphabetically will be put after the word coming 2nd and the word coming 2nd will be put after the word coming 3rd. This is the reason why 'hope' has been put before 'gate' and 'set' has been put before 'let'.

Important Note: *The case of arrangement discussed so far are the cases of push. In all the cases a new word jumps from its place in every step, occupies its new and due place and gives the remaining words and push either towards left or right as per the requirement of the pattern. But in some cases of arrangement interchange does take place and that format is given below:*

8. Arrangement with Interchange:

Let us see the following format of arrangement :

Input:	the	most	beautiful	girl	is	Vandana
Step I:	beautiful	most	the	girl	is	Vandana
Step II:	beautiful	girl	the	most	is	Vandana
Step III:	beautiful	girl	is	most	the	Vandana

In this case, the word (beautiful) coming 1st in alphabetical order comes at the 1st position from left interchanging its place with the word 'the' and this is step I. In step II, the word (girl) coming 2nd in alphabetical order occupies the 2nd position from left interchanging with the word 'most'. In step III, the word coming 3rd (is) comes at the third position from left interchanging with the word 'the' and finishing the complete arrangement in alphabetical order.

This kind of arrangement can also be made in reverse order as follows:

Input :	the	most	beautiful	girl	is	Vandana
Step I:	Vandana	most	beautiful	girl	is	the
Step II:	Vandana	the	beautiful	girl	is	most
Step III:	Vandana	the	most	girl	is	beautiful
Step IV:	Vandana	the	most	is	girl	beautiful

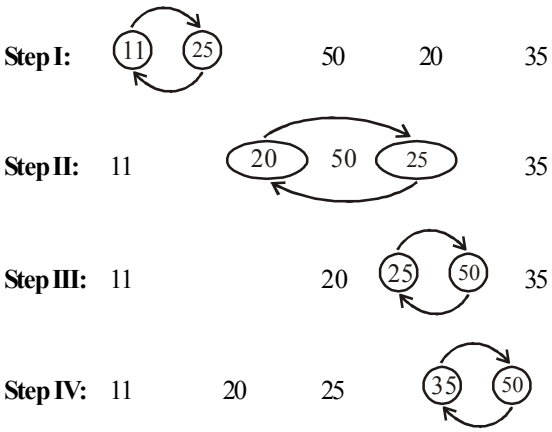
Here, the words take 4 steps to get arranged. In step I, the word (Vandana) coming last alphabetically comes at the 1st position from left interchanging its place with the word 'the'. In step II, the word (the) coming 2nd last alphabetically takes 2nd place from left interchanging its place with the word 'most'. In step III, the word (most) coming last alphabetically interchange its place with the word 'beautiful' and comes at the 3rd position from left. In step IV, the word (is) coming fourth last alphabetically comes at the 4th position interchanging its place with the word 'girl' and finishing the complete arrangement.

This type of cases can also be seen in number arrangements and in the arrangements of numbers and words simultaneously. The examples of these type of arrangements are given below:

EXAMPLE 1. (Increasing order number arrangement)

Input:	25	11	50	20	35
Step I:	11	25	50	20	35
Step II:	11	20	50	25	35
Step III:	11	20	25	50	35
Step IV:	11	20	25	35	50

Presentation :

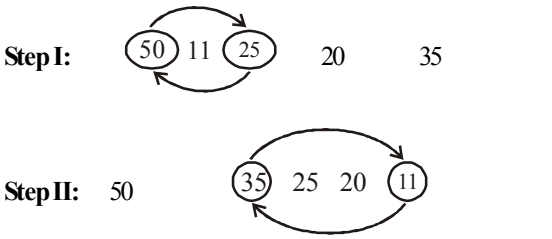


The presentation gives you the clear idea of how interchange takes place in every step.

EXAMPLE 2. (Decreasing order number arrangement)

Input:	25	11	50	20	35
Step I:	50	11	25	20	35
Step II:	50	35	25	20	11

Presentation:



Points to be Remember

1. First of all, observe the given input line of words or numbers and the last step of rearrangement, so that candidate may get an idea about the changes effected in various steps of rearrangement.
2. In order to know what changes have been made in each step, observe two consecutive steps carefully.
3. Now, correlate the input, the last step and anyone of the middle steps. This will enable you to identify the rule of arrangement.
4. In shifting problems, it is possible to determine the previous/ earlier steps including input. We can proceed/move backward or in reverse direction in shifting problems.
5. In shifting problems for convenience, we assign numeric value to given words.

EXERCISE

Directions (Qs. 1-5): Study the following information to answer the given questions:
A word and number arrangement machine when given an input line of words and numbers, rearranges them following a particular rule in each step. The following is an illustration of input and steps of rearrangement:

Input: wind packet 19 7 back 12 task 34
Step I: 34 wind packet 19 7 back 12 task
Step II: 34 back wind packet 19 7 12 task
Step III: 34 back 19 wind packet 7 12 task
Step IV: 34 back 19 packet wind 7 12 task
Step V: 34 back 19 packet 12 wind 7 task
Step VI: 34 back 19 packet 12 task wind 7
Step VII: 34 back 19 packet 12 task 7 wind
and Step VII is the last step.

As per the rules followed in the above steps, find out in the given questions the appropriate step for the given input.

1. **Input:** 9 13 about tariff 24 call 29 even.
Which of the following will be step IV?
(a) 29 about 24 9 13 tariff call even
(b) 29 about 24 call 9 13 tariff even
(c) 29 about 24 call 13 9 tariff even
(d) 29 about 24 call 13 even 9 tariff
(e) Cannot be determined

2. If Step II of an input is "37 desk 34 garden 5 father victory 17", which of the following steps will be the last step?
(a) Step III (b) Step V
(c) Step IV (d) Step VI
(e) None of these

3. If Step I of an input is
59 bead tenure father 38 11 ultimate 24
Which of the following will be Step III?
(a) 59 bead 38 tenure 11 father ultimate 24
(b) 59 bead 38 11 tenure father ultimate 24
(c) 59 bead 38 tenure father 11 ultimate 24
(d) 59 bead 38 father tenure 11 ultimate 24
(e) None of these

4. If the last step of an input is 41 cost 32 over 28 project 17 violet which of the following must be the input?
(a) project 32 cost over 17 41 violet 28
(b) project 32 cost over 41 violet 17 28
(c) project cost 32 over 41 17 violet 28
(d) Cannot be determined
(e) None of these

5. Which of the following will be the Step III of the following input?
Input: 24 12 entry sand butter 51 32 carry
(a) 51 butter 32 24 12 entry sand carry
(b) 51 butter 32 carry 24 12 entry sand
(c) 51 butter 32 carry 24 entry 12 sand
(d) 51 24 12 entry sand butter 32 carry
(e) None of these

Directions (Qs. 6-10): Study the following information carefully and answer the given questions:
A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input: 93 come home over 32 47 now 26
Step I: over 93 come home 32 47 now 26
Step II: over 26 93 come home 32 47 now
Step III: over 26 now 93 come home 32 47
Step IV: over 26 now 32 93 come home 47
Step V: over 26 now 32 home 93 come 47
Step VI: over 26 now 32 home 47 93 come
Step VII: over 26 now 32 home 47 come 93 and Step VII is the last step.

As per the rules followed in the above steps, find out in each of the following questions the appropriate step.

6. Step II of an input is:
sky 20 90 37 begin again 11 home
Which of the following is definitely the input?
(a) 20 90 37 begin again 11 home sky
(b) sky 90 37 20 begin again 11 home
(c) 90 20 37 begin sky again 11 home
(d) Cannot be determined
(e) None of these

7. Step III of an input is:
take 17 mind game 29 73 18 loud
How many more steps are required to complete the sequence?
(a) Two (b) Three
(c) Four (d) Five
(e) None of these

8. **Input:** by now 51 32 for 91 20 me
Which of the following steps will be the last?
(a) III (b) IV
(c) V (d) VI
(e) None of these

9. **Input:** fight for all 39 62 25 today 19
Which of the following will be step IV?
(a) today 25 for 39 fight all 62 19
(b) today 19 for 25 fight all 39 62
(c) today 19 for 25 fight 39 all 62
(d) Cannot be determined
(e) None of these

10. **Input:** queen mary 79 6217 20 green west
Which of the following steps will be the last but one ?
(a) VI (b) VII
(c) V (d) VIII
(e) None of these

Directions (Qs. 11-17) : Study the following information to answer the given questions. A number arrangement machine when given an input of numbers, rearranges them following a particular rule in each step. The following is an illustration of input and steps of rearrangement.

Input	25	280	345	36	93	147	550
Step I	550	280	345	36	93	147	25
Step II	550	345	280	36	93	147	25
Step III	550	345	280	147	93	36	25

This is the final arrangement and Step III is the last step for this input.

11. If '842 485 68 358 236 123 93' is the second step of an input, which of the following steps will be '842 485 358 236 123 68 93'?
(a) Fourth (b) Fifth
(c) Sixth (d) Can't be determined
(e) None of these

12. How many steps will be required to get the final output from the following input?
Input : 78 293 585 740 64 132 26
(a) 4 (b) 5
(c) 3 (d) 6
(e) None of these

13. What will be the third step for the following input?
Input : 113 18 48 225 462 175 288
(a) 462 288 48 225 113 175 18
(b) 462 288 225 175 113 48 18
(c) 462 225 288 48 113 175 18
(d) 462 288 225 48 113 175 18
(e) None of these

14. If following is the first step for an input, what will be the fourth step?
Step I : 498 175 292 96 79 387 158
(a) 498 387 292 175 158 79 96
(b) 498 387 292 175 96 158 79
(c) 498 387 292 175 158 96 79
(d) 498 387 292 175 79 158 96
(e) None of these

15. Following is the step II for an input. What will be the first step for the input?
Step II : 595 438 28 142 38 65 289
(a) 595 28 438 142 38 65 289
(b) 595 438 142 28 38 65 289
(c) 595 28 142 438 38 65 289
(d) Can't be determined
(e) None of these

16. What will be the second step for the following input?
Input : 158 294 22 89 .142 385 463
(a) 463 385 294 22 89 142 158
(b) 463 385 89 22 142 294 158
(c) 463 385 22 89 142 158 294
(d) 463 385 22 142 89 158 294
(e) None of these

17. Which of the following is the last step for the following input?
Input : 145 227 900 49 116 243 356
(a) 900 356 243 227 49 145 116
(b) 900 356 243 227 145 116 49
(c) 900 356 227 243 145 116 49
(d) 900 356 243 227 116 145 49
(e) None of these

Directions (Qs. 18-22) : Study the following information carefully and answer the given questions:
A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input : sky forward 17 over 95 23 come 40
Step I : come sky forward 17 over 95 23 40
Step II : come 95 sky forward 17 over 23 40
Step III : come 95 forward sky 17 over 23 40
Step IV : come 95 forward 40 sky 17 over 23
Step V : come 95 forward 40 over sky 17 23
Step VI : come 95 forward 40 over 23 sky 17

Step VI is the last step of the rearrangement of the above input. As per the rules followed in the above steps, answer the following questions.

18. **Input :** machine hire for 19 against 85 2146
Which of the following will be step II?
(a) against 85 hire machine for 19 21 46
(b) against 85 machine 19 hire for 21 46
(c) against 85 machine hire for 19 21 46
(d) Cannot be determined
(e) None of these

19. **Input :** box at 20 53 62 gift now 32
Which of the following is step IV?
(a) at 62 box 53 gift 32 20 now
(b) at 62 box 53 gift 32 now 20
(c) at 62 box 53 gift 20 now 32
(d) Cannot be determined
(e) None of these

20. **Input:** on at 33 27 42 sky mat 51
Which of the following steps will be the last?
(a) VI (b) VII
(c) V (d) VIII
(e) None of these

21. Step III of an input is:
bring 63 desk 11 29 together fight 30
Which of the following steps will be the last but one?
(a) VI (b) VII
(c) VIII (d) V
(e) None of these

22. Step II of an input is:
earn 72 31 46 higher goal 20 more
Which of the following is definitely the input?
(a) 46 72 31 earn higher goal 20 more
(b) 20 31 72 46 higher goal earn more
(c) higher 20 31 72 46 goal earn more
(d) Cannot be determined
(e) None of these

Directions (Qs. 23-27) : Read the following information carefully and answer the questions given below:
A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule and generates stepwise outputs till the arrangement is complete following that rule.
Following is an illustration of input and steps of rearrangement till the last step.

Input : tree cut 92 51 food 17 garden 32

Step I: cut tree 92 51 food 17 garden 32
Step II: cut food tree 92 51 17 garden 32
Step III: cut food 92 tree 51 17 garden 32
Step IV: cut food 92 51 tree 17 garden 32
Step V: cut food 92 51 garden tree 17 32
Step VI: cut food 92 51 garden tree 32 17

And Step VI is the last step of the input.

As per the rules followed in the above steps, find out the answer to each of the questions given below:

23. Step IV of an input is:
earn more 82 63 12 31 quite new
Which of the following will definitely be **Step II** of the output?
(a) earn more 12 63 82 31 quite new
(b) earn more new 82 63 12 31 quite
(c) earn more quite new 82 12 63 31
(d) Cannot be determined
(e) None of these

24. **Input:** bring home 42 73 15 goal 32 type
Which of the following steps will be the last?
(a) V (b) VI
(c) IV (d) VII
(e) None of these

25. **Input:** bench 47 63 advance 13 29 again between
Which of the following is the step III of the output?
(a) advance again 63 47 bench 13 29 between
(b) advance again 63 47 bench between 13 29
(c) advance again 63 47 bench between 29 13
(d) Cannot be determined
(e) None of these

26. Step II of an input is:
desk eagle 12 28 41 69 foreign land
How many more steps will be required to complete the rearrangement?
(a) 4 (b) 6
(c) 5 (d) 3
(e) None of these

27. Step III of an input is:
again dark 83 sour 19 21 prey 39
Which of the following steps will be the last but one?
(a) V (b) VI
(c) VIII (d) VII
(e) None of these

Directions (Qs. 28 - 32) : Study the following information carefully to answer the questions given below. In a toy exhibition, a machine processes a given input by the following rule. Participants are shown one by one till it reaches its last step. Following is an illustration of the working of this machine.

Input : sui me ato fe zen u no
Step I : fe sui me no ato zen u
Step II : no fe sui u me ato zen
Step III : u no fe zen sui me ato
Step IV : zen u no ato fe sui me
Step V : ato zen u me no fe sui and so on.

Now attempt the questions given below.

28. Which of the following steps would read as 'not you only say wise yet are' for the input 'say not you are only wise yet'?
(a) III (b) V
(c) VI (d) VII
(e) None of these

29. If the Step V of an input is 'so cd rom lay is nor it', which of the following would be its Step II?
(a) is nor it rom lay so cd (b) nor it lay is so cd rom
(c) lay so cd it rom is nor (d) Data inadequate
(e) None of these

30. If the Step III of an input is 'lo men chi from yet as know', which of the following would be its input?
(a) Data inadequate
(b) from lo men know chi yet as
(c) men chi yet lo as know from
(d) chi as know men know from lo
(e) None of these

31. Which of the following correctly describes the 'machine logic' in generating various steps based on the given input?
(a) Each step is generated on random basis.
(b) Words/letters are finally arranged in dictionary order.
(c) The seventh letter interchanges with the fourth every time.
(d) Data inadequate
(e) None of these

32. What will be the step IV for the following input?
Input : may sen to cry if not hell
(a) cry may sen to if not hell
(b) if not hell to cry may sen
(c) sen to if may not hell cry
(d) not hell cry if may sen to
(e) None of these

Directions (Qs. 33-37): A word arrangement machine, when given a particular input, rearranges it following a particular rule. The following is the illustration of the input and the steps of arrangement:

Input: 95 is 11 my are
Step I: is 95 11 my are
Step II: is 11 95 my are
StepIII: is 11 my 95 are
Step III is the last step for this input.

Now, study the logic given above and answer the questions that follow:

33. **Input:** go 123 save be 39 67 let
Which among the given steps will be the last step for the given input'?
(a) III (b) IV
(c) V (d) VI
(e) None of these

34. **Input:** we 143 lay as 12 may 36
What is step IV for the given input?
(a) as 12 we lay 36 143 may
(b) as 12 we 36 143 lay may
(c) as we 143 lay 12 may 36
(d) may 36 12 lay 143 we as
(e) None of these

35. If step III of an input is 'mare 1665 meat 1885 saves 20171 19199', then which of the following will definitely be the input?

(a) meat saves 20171 1885 mare 1665 19199
(b) mare 1885 saves meat 1665 19199 20171
(c) 19199 saves mare meat 1885 1665 20171.
(d) Can't be determined
(e) None of these

36. **Input:** like tea 115 1264 eat 151 gate
For the above input, which step will be the following arrangement?
Arrangement: eat 115 tea 151 like 1264 gate
(a) VI (b) V
(c) III (d) II
(e) None of these

37. If step II of a given input is 'get 116 1250 say 1124 four 148 hire' then which of the following is step VI of the given input?
(a) get 116 say 148 four 1124 hire 1250
(b) get 116 say 148 1250 1124 four hire
(c) get 116 say 148 four 1124 1250 hire
(d) Data inadequate
(e) None of these

Directions (Qs. 38-42) : Study the following information to answer the given questions.
A word arrangement machine when given an input line of words, rearranges them following a particular rule in each step. The following is an illustration of the input and the steps of rearrangement.

Input : going but for crept te light sir
Step I : crept going but for te light sir
Step II : crept going light but for te sir
Step III : crept going light but for sir te
(Step III is the last step for this input)

As per the rules followed in the above steps, find out in the given questions the appropriate step for the given input.

38. **Input:** the in car as he may me
Which of the following will be the third step for this input?
(a) car the in as he may me
(b) car may the as in he me
(c) car as may he the in me
(d) car may the in as he me
(e) None of these

39. If the second step of an input is 'clever remand window sales batch tiger never' which of the following will be its sixth step?
(a) clever remand window batch sales tiger never
(b) window remand clever sales batch tiger never
(c) batch never sales tiger clever remand window
(d) clever remand window tiger batch sales never
(e) It cannot have sixth step.

40. If the input is 'true se veto be nuke my like', which of the following will be the IV step?
(a) like nuke true veto be se my
(b) be my like se true veto nuke
(c) be my se like true veto nuke
(d) veto true nuke like so be my
(e) Cannot be determined

41. **Input:** 'more fight cats cough sough acts idea'.
Which of the following steps would be the last step for this input?
(a) III (b) IV
(c) V (d) VI
(e) VII

42. If the V step of an input is 'more pure soft cat not so sir at', what will be the Il step?
(a) at so more pure cat not soft sir
(b) more pure soft so sir cat at not
(c) more pure soft cat so sir at not
(d) more so sir soft pure cat at not
(e) Cannot be determined

Directions (Qs. 43-49): Study the following information to answer the questions given below :
A number arrangement machine when given an input of numbers, rearranges them following a particular rule in each step. The following is an illustration of input and steps of rearrangement.

Input	:	48	245	182	26	99	542	378	297
Step I	:	542	48	245	182	26	99	378	297
Step II	:	542	26	48	245	182	99	378	297
Step III	:	542	26	378	48	245	182	99	297
Step IV	:	542	26	378	48	297	245	182	99
Step V	:	542	26	378	48	297	99	245	182

This is the final arrangement and step V is the last step for this input.

43. What will the fourth step for an input whose second step is given below?
Step: 765 42 183 289 542 65 110 350
(a) 765 42 542 350 183 289 65 110
(b) 765 42 542 65 110 183 289 350
(c) 765 42 542 65 183 289 110 350
(d) Cannot be determined
(e) None of these

44. What should be the third step of the following input?
Input: 239 123 58 361 495 37
(a) 495 37 361 123 239 58
(b) 495 37 58 361 123 239
(c) 495 37 58 123 361 239
(d) 495 37 361 239 123 58
(e) None of these

45. How many steps will be required to get the final output from the following input?
Input: 39 88 162 450 386 72 29
(a) Two (b) Three
(c) Four (d) Six
(e) None of these

46. What should be the last step of the following input?
Input: 158 279 348 28 326 236
(a) 348 28 326 158 279 236
(b) 348 28 326 236 158 279
(c) 348 28 236 158 279 326
(d) 348 28 158 326 236 279
(e) None of these

47. If the first step of an input is
"785 198 32 426 373 96 49",
then which of the following steps will be
"785 32 426 49 198 373 96"?
(a) Third (b) Fourth
(c) Fifth (d) Second
(e) None of these

48. Below is given the second step of an input. What will be its fourth step?
Step II: 298 12 128 36 212 185

(a) 298 12 212 128 36 185
(b) 298 12 212 36 128 185
(c) 298 12 36 212 128 185
(d) Cannot be determined
(e) None of these

49. Below is given the third step of an input. What will be its second step?
Step III: 387 42 236 185 92 64
(a) 387 42 185 236 92 64
(b) 387 42 92 185 236 64
(c) 387 42 185 92 236 64
(d) Cannot be determined
(e) None of these

Directions (Qs. 50-54): Study the following information carefully and answer the questions given below it :
An export processing unit has a computerised machine which generates six codes to distinguish products of each of the seven batches produced in a day. The machine is fed code for the first batch of each day. Based on that, the machine generates 6 codes by rearrangement of words for subsequent batc hes. Following is an illustration of generation of codes for some batches of a day.
Day's **first** batch – who nut cream page for table.
Day's **second** batch –who for cream page nut table.
Day's **third** batch – who for page cream nut table.
Day's **fourth** batch – table for page cream nut who.
Day's **fifth** batch – page table for nut who cream.
Day's **sixth** batch – page who for nut table cream.
and so on till seventh batch. Next day based on the same rule, new set of words will be introduced as given above :

50. If the seventh batch of the day is 'from door no leaf glass but', which of the following would be the first three words of the code of the third batch of that day?
(a) door leaf from ... (b) door leaf but ...
(c) glass leaf but ... (d) but door no ...
(e) None of these

51. If the code of sixth batch of the day is 'very say could man on fire', which of the following batch codes would read as 'say could very fire man on'?
(a) Second (b) Third
(c) Fourth (d) Fifth
(e) None of these

52. If the code of fourth batch is 'so when clean get lemon dust', which of the following would be the code for seventh batch?
(a) get dust lemon when so clean
(b) clean so when lemon dust get
(c) when get dust so clean lemon
(d) clean dust lemon when so get
(e) None of these

53. If the first batch code of a day is 'five gave it close to mine', which of the following will be the code for fourth batch?
(a) five to it close gave mine
(b) mine to close it gave five
(c) five to close it gave mine
(d) close five to gave mine it
(e) None of these

54. If the code of fifth batch of a day is 'same is tea at now then', which of the following would definitely be the first code of that day?
(a) tea same is now then at
(b) same now tea at is then
(c) now at then same tea is
(d) now tea is same then at
(e) None of these

Directions (Qs. 55-59): Study the following information carefully and answer the questions given below:
An exhibition is open for public since 9 am till 3 pm and again since 4 pm till 10 pm. In a day there are 12 batches of 1 hour each. The entry ticket bears a pass code made up of seven words, which changes every hour following a particular rule. The pass codes for 4 pm to 10 pm are the same as those for respective hours during 9 am till 3 pm, i.e. the pass code for 4 pm to 5 pm is same as of 9 am to 10 am and so on. Following is an illustration of the code and steps of rearrangement for subsequent clock hours.

		Day's Pass code
First batch	9 am to 10 am (4 pm to 5 pm)	dig more and you will find water
Second batch	10 am to 11 am (5 pm to 6 pm)	and dig find you water will more
Third batch	(11 am to 12 noon) (6 pm to 7 pm)	find and will you more water dig.

and so on.

55. If the pass-code for 7 pm to 8 pm batch is 'pen with write pencil nice time day', what will be the pass-code for 11 am to 12 noon?
(a) day nice with pencil write pen time
(b) day with nice pencil write pen time
(c) nice day with pencil write pen time
(d) nice day pencil with write time pen
(e) None of these

56. If the pass-code for the batch 4 pm to 5 pm is 'go to office in time every day', what will be the pass code for 2 pm to 3 pm batch?
(a) day to go in every office time
(b) to day go in every office time
(c) to go day in every office time
(d) to go in day every office time
(e) None of these

57. If the pass-code for the second batch is 'do not play the near water dirty', what will be the pass code for 2 pm to 3 pm batch?
(a) dirty near play the not do water
(b) near dirty not the play do water
(c) dirty near not the play do water
(d) near dirty not the play water do
(e) None of these

58. If the pass-code for third batch is 'at study sleep and night child good', which batch will have the pass-code 'child sleep night and study good at?
(a) Second (b) Fourth
(c) Sixth (d) Fifth
(e) None of these

59. If the pass-code for 5 pm to 6 pm is 'out in above over field the and', what will be the pass-code for 1 pm to 2 pm?
(a) field and the over out in above
(b) the field and over out in above
(c) field the and over out above in
(d) the field and over out above in
(e) None of these

Directions (Qs. 60-64): Study the following information carefully and answer the questions given below :

A word arrangement machine, when given a particular input, rearranges it following a particular rule. The following is the illustration of the input and the steps of arrangement:

Input: top the name good for is there
Step I: is top the name good for there
Step II: is for top the name good there
Step III: is for the top name good there
Step IV: is for the top good name there

(This is the last arrangement and step IV is the last step of this input.)

60. If following is the second step of an input, what will be the fourth step?
Step II: is to for while they were going day
(a) is to day for they while were going
(b) is to day for while they were going
(c) is to for day while they were going
(d) Can't be determined
(e) None of these

61. If following is the third step of an input, what will be its first step?
Step III: no dog was first five forest dense
(a) no was dog first five forest dense
(b) no first was dog five forest dense
(c) no dog first was forest five dense
(d) can't be determined
(e) None of these

62. Which of the following is the third step for the following input?
Input: lack of a common safe in the
(a) a of in the lack common safe
(b) a of in lack common safe the
(c) a in of lack common safe the
(d) a in of the lack common safe
(e) None of these

63. How many steps will be required to get the final output from the following input?
Input: where do you go out of way
(a) One (b) Three
(c) Four (d) Eight
(e) None of these

64. If step I of an input is 'If there was no good man', what step would be 'if no man there was good'?
(a) Second (b) Third
(c) Fourth (d) Can't be determined
(e) None of these

CHAPTER 13

Analytical Decision Making

INTRODUCTION

Analytical Decision Making is based on a set of relationships laid out, generally arbitrarily, from which new information can be deduced. This involves two steps-first of analysis and second of reasoning. Analytical decision making deals with questions in which you have to decide upon the course of action taken upon a candidate who has applied for a post or membership to an institution keeping in mind the essential requisites and the data given for the candidate. We can classify such questions into a few major categories.

Category I

In this type a vacancy is being declared. The necessary qualifications required by the recruiting agencies are given with certain exceptions. The qualifications and the merits of the candidates are mentioned. The decision about each candidate has to be made from amongst the five choices given, which state the courses of action to be taken as per the candidate's potential.

Category II

Here the eligibility conditions for joining a course or availing certain benefits etc are given as against the vacancies mentioned in the former category. The qualifications of the candidates are also mentioned. The decision about each candidate is to be made from amongst the five answer choices given.

FORMAT OF THE QUESTION

Example Directions: Read carefuly the informations given below and answer the questions based on it:

The following are the given conditions for the recruitment of a candidate as a family member in a computer institute:

(i) The candidate must be in the age range of 23 years to 28 years as on 1st November, 2013.

(ii) The candidate must have work experience as a teacher or programming experience of at least 2 years.

(iii) The candidate must have a PG degree in computer application, [MCA, M.Tech. or M.Sc. (computer science)] with not less than 60% marks.

(iv) Out of total 50 marks in the interview, the candidate must obtain 50%. In the case when a candidate

(v) Fulfils the above conditions, he/she shall be appointed as senior teacher.

(vi) Has less than 60% but more than 50% marks in his/her PG degree in computer application, he/she will be appointed as junior teacher.

(vii) Is of age more than 28 years but less than 32 years as on 1st November, 2013, the case may be reffered to the GM of the institute.

On the basis of the above mentioned conditions and information about each of the candidates in the question below, you have to decide which of the following courses of action should be than against each candidate. Point to be noted that nothing extra will be assumed except the given information. The decision must be based only on the data provided.

Mark your answer:

(a) If the candidate is to be selected as a Junior teacher
(b) If the candidate is to be selected as a Senior teacher
(c) If the case will be reffered to the GM of the institute.
(d) If the data are inadequate
(e) If the candidate is not to be selected.

QUESTIONS:

1. **Mukesh Verma** was born on 31st July, 1985. He is an M.Tech. in computer engineering with 70% marks. He has been working in an institution as a programmer for the last 7 years.

2. **Karishma Tiwari** is MCA with 72% marks. Her date of birth is 14th August, 1990. She has worked as a computer teacher for 4 years. She has got 35 marks in interview.

3. **Brijesh Shankar** is an M.Tech. with 54% marks. He was born on 31st December, 1991. He has been working as a programmer for the last 5 years. He has obtained 45 marks in the interview.

4. **Mansi Ranjan** is M.Sc. (computer science) with 55% marks. Her date of birth is 10 July, 1988. She has been working as a computer programmer for 6 years. She has abtained 40% marks in the interview.

5. **Subodh Saxena** is MCA with 54% marks. He has 4 years work experience as a computer teacher. His date of birth is 12th February, 1989. He has got 55% marks in interview.

What You See in the given Question Format?

In the given format you can see the following things:

(1) Informations about some candidates have been provided.

(2) Some conditions have been given for candidates to fulfil in order to get selected for a particular job/post. In case of the given format, four conditions have been given.

(3) When a candidate fulfils all the criteria except some, then different course of action has to be taken for him.

Some more things to understand

Basic conditions: In the given question format, there are four basic conditions — (i), (ii), (iii) and (iv). They are called basic conditions because they are the original conditions.

Additional conditions: In the given question format, there are two more conditions apart from the basic conditions and they are (vi) and (vii). point to be noted that (v) will not be on additional condition as it does not talk of exceptions. In fact (v) is only a totality of the four basic or original conditions given in the question format.

What is data inadequacy?

As one of the answer is given as 'data inadequate' we must be clear about what exactly does data inadequacy mean? When details given about any candidate provide no information as required by the basic conditions/additional conditions then this would be the case of data inadequacy, For example, let us see the 1st question given in the format. No information is given about what marks have been obtained by Mukesh Verma in the interview. Hence, the data is inadequate here.

How to solve a given problem?

Let us consider the questions given in the format and start one stepwise process.

STEP I

Write the name of the candidates in the left side and then write the symbols (i, ii, iii, iv) of the basic conditions to the top right. Now, put the symbols of the additional conditions (vi and vii) below the symbols of that basic condition with which these might be related. For example, (vi) is a condition about educational qualification and so, it is an exception of (iii). Hence (vi) should be written below (iii). Similarly, (vii) should be written below (i). Now, after the completion of step I, the following format will be prepared:

		i (vii)	ii	iii (vi)	iv
1	Mukesh Verma				
2	Karishma Tiwari				
3	Brijesh Shankar				
4	Mansi Ranjan				
5	Subodh Saxena				

NOTE : *To differentiate between basic conditions and additional conditions. The additional conditions have been encircled.*

STEP II

At the 2nd step just see the given answer choices carefully and decide which combination of the conditions leads to which conclusion. If we see the given question format with serious eye, we find that the following combination can be formed.

i + ii + iii + iv → 2 [Senior teacher]

vii + ii + iii + iv → 3 [Case will be reffered to GM]

i + ii + vi + iv → 1 [Junior teacher]

When we have decided the above three combination giving answer choices remain and the answer choice (a), (b) and (c), two answer choices remains and they are answer choice (d) and answer choice (e). The answer choice (e), which says that the candidate is not to be selected, should be chosen when any one or more of the given conditions is violated. The answer choice (d), which tells that the data are inadequate, should be chosen when no information is given about any one or more conditions.

How to examine data?

After step II you are required to read all the statements carefully. Just take each question one by one and compare then with the given conditions. Examinees are suggested to use following symbols while doing this comparision:

I If a basic condition is fulfilled mark '✓' sign below it.

II If a basic condition is violated and it is not attached with an additional condition then mark 'X' sign below it.

III If a basic condition is violated but it is attached with an additional condition then.

(A) Mark a '×' sign below it if additional condition is also violated.

(B) Mark a '✓' sign below it if additional condition is fulfilled.

IV In case of unavailability of any information about any condition, a mark '?' Will be put below that condition.

To understand point (i) to point (iv) let us see the presentation given below:

Question No.	I	II/V	III/VI	IV
1	✓	✓	✓	×
2	✓	✓	✓	✓
3	✓	(✓)	(✓)	✓
4	✓	✓	(×)	✓
5	✓	?	✓	✓

Now just see the explanation of above table:

(1) I, II, III and IV are basic conditions while (V) and (VI) are two additional conditions. (V) is attached to II and (VI) is attached to III.

(2) In question (1), I, II and III are satisfied while VI is violated

(3) In question (2), all the basic conditions I, II, III and IV are satisfied

(4) In question (3), the basic conditions I and IV are satisfied while II and III are violated. Though the basic conditions, II and III are violated, the additional conditions (IV) and (VI) are satisfied

(5) In question (4), III and (VI) are violated but I, II and IV are satisfied

(6) In question (5), No information is given about II or (V) but the basic condition I, III and IV are satisfied

STEP III

(i) One by one, read the questions very carefully and compare the facts given with the various condition.

(ii) Mark the appropriate sign or '✓' or '×' (✓) or (×)? As required

(iii) When a '×' or a (×) sign is obtained, then stop examining further and without any hesitation select the answer choice "not to be selected" for that particular question. In another words whenever you get '×' or (×) sign, do not take any botheration to examine the remaining condition, select your answer as "not to be selected and quickly move on to the next question. It so happens because, if a condition as well as its additional condition is violated, it does mean that one necessary requirement is not being fulfilled. Hence, we reach at a conclusion that the selection is not possible even it other conditions are fulfilled.

STEP IV

Now, this is the time to select your answer choices on the pattern given below:

(i) If find a '×' or (×) below any condition, go for the answer choice "not to be selected"

(ii) If you find no cross mark but there is a question mark below any condition, your answer choice would be "data are inadequate".

(iii) If you find neither any cross mark nor any question mark, than compare the combination with the three answer combinations obtained in step II and select the answer choice accordingly.

After understanding the above steps, now we are at a position of solving the question given in the question format. Let us see the solution:

Solution:

Question No.		(i) / (vii)	(ii)	(iii)/ (vi)	(iv)
1	Mukesh Verma	(✓)	✓	✓	?
2	Karishma Tiwari	✓	✓	✓	✓
3	Brijesh Shankar	(×)	✓	(✓)	✓
4	Mansi Ranjan	✓	✓	(✓)	×
5	Subodh Saxena	✓	✓	(✓)	✓

Condition (V) is attached to II while the additional condition is VI attached with the basic condition III.

STEP WISE EXPLANATION OF ABOVE TABLE:

Step I

At the step I level, we read the question carefully and find out that there are four, basic conditions i, ii, iii and iv and two additional conditions vii and vi. further, it is clear that 'vii' is an exception of 'i' and 'vi' is an exception of 'iii'. Now we write the name of the candidates in extreme left and then put the basic conditions i, ii, iii and iv at the top-right of the candidate in question 1. Next, we write additional condition 'vii' below 'o' and additional condition 'vi' below 'iii'.

Step II

At the 2nd level, we look at the answer choices and prepare one answer combinations accordingly. This will be:

i + ii + iii + iv ⇒ b

vii + ii + iii + iv ⇒ c

i + ii + vi + iv ⇒ a

Step III

At the step III level, we read every question carefully and compare the facts given in it with the various conditions. Let us see the detailed analysis of every candidate question wise.

Q. 1 Mukesh Verma

He is an M.Tech in computer engineering with 70% marks. This fulfills condition C. Hence we write '✓' mark below C. Next, his date of birth is 31st July, 1985. Here, we do a mental calculation that on 31st July, 2013 he turned 28th. This is the reason that on 1st November 2013, he is more than 28 years. Therefore, (i) is violated, but the additional condition of (i) is (vii) which is fulfilled and we write (✓) mark here. Further, Mukesh Verma is having a programming experience of 7 years (more than 2 years). So we mark (✓) below (ii). Lastly, there is no information about marks of Mukesh in the interview. Thus the sign of question mark '?' is put below d.

Q 2. Karishma Tiwari

Karishma is an MCA with 72% marks. This fulfills (iii), so we put the mark '✓' below (iii). Her date of birth is 14th August, 1990, So on 1st November, 2013, she is more than 23 years. This fulfills '(i)' and hence we put a (✓) mark below '(i)'. She is a computer teacher from last 4 years. This fulfils (ii) and we put (✓) mark below (ii), lastly, she has obtained 35 marks in the interview. This marks is more than the required 50% (25 marks out of 50 marks), therefore (iv) is also fulfilled and we put (✓) mark below (iv).

Q.3 Brijesh Shankar

He is an M.Tech. with 54% marks and this violates the basic conditions (iii). But it is also clear that an additional condition (vi) is attached to (iii) and we see that (vi) is fulfilled and thus a (✓) mark is put over there. This date of birth is 31st December, 1991, so he is certainly below 23 years in 2013. This violates basic condition '(i)'. We see that an additional condition (vii) is attached to '(i)' but (vii) too is violated. Hence we put a (×) mark here and stop our after for this question as we know that if a '×' or (×) is obtained then there is no need to go further and in this case we select our answer choice "not to be selected" and move on to the next question.

Q. 4 Mansi Ranjan

She is an M.Sc. with 55% marks. This violates the basic condition '(iii)' but fulfills the attached additional condition (vi). Hence we put a (✓) mark over here. She is born in 1968, so it is clear that she is roughly 25 years old. Thus '(i)' is fulfilled and we put (✓) below '(i)'. She has a programming experience of 6 years. This fulfills (ii) and thus we put ✓ mark below (ii). She has got 40% marks in interview which is less than required 50% and thus is violates 'd' and we put '×' mark below '(iv)'.

Q.5 Subodh Saxena

He is an MCA with 54% marks. This violates (iii) but fulfills (vi). Hence, we put (✓) mark here. He has a programming experience of 4 years. This fulfills (ii) and we put (✓) mark below '(ii)'. He was born in 1969, so he is roughly 24 years old. Here '(i)' is fulfilled and we put (✓) mark below '(i)'. As he has got 50% marks in the interview, therefore (iv) is fulfilled and we put (✓) mark below '(iv)'.

Step IV

At 4th level we select the answer choices.

Q.1 No cross mark. But a question mark is available. Hence data is inadequate.

Therefore correct answer is option d.

Q.2 i + ii + iii + iv ⇒ b [step II]

Therefore, correct answer is option b.

Q.3 A cross mark is available, Hence "not be selected" therefore, option e is the correct answer.

Q.4 Option e is the correct answer as a cross mark exists.

Q.5 i + ii + (vi) + iv ⇒ a [step II]

Hence correct option is option a.

EXERCISE

Directions(Qs.1-5): Study the following information carefully and answer the questions given below:

Following are the eligibility criteria for becoming member of an exclusive club:

(i) The applicant should have annual income of at least ₹5 lakhs and should be able to pay one-time membership fee of ₹1 lakh.
(ii) The annual income and one-time membership fee is relaxed up to 50% for former defence personnel.
(iii) For the sons and daughters of the existing members the criterion of annual income is reduced to ₹ 3 lakhs and membership fee to ₹ 70 thousand.
(iv) Serving court judges are offered membership free and also the stipulation of annual income is waived.
(v) A national level sports personnel is eligible to become a member by paying ₹ 20 thousand as membership fee irrespective of annual income.

Below in each question, data/information about an individual is given. You have to decide, based on the information provided, under which criterion/criteria the individual is eligible to obtain membership. Please note that an individual can be eligible under more than one criteria. You are not to assume anything other than the information provided in each question.

1. Ashok Malhotra has been working in a Private Airlines Company as a pilot. His annual income is ₹ 10 lakhs. He is ready to pay ₹ 50 thousand as one-time membership fee. His father is a retired army officer.
   (a) Not eligible
   (b) Eligible under (ii) and (iii) only
   (c) Eligible under (ii) only
   (d) Eligible under (iv) only
   (e) None of these
2. Navin Singh can pay ₹70 thousand as membership fee. He has been playing in the national football team and he works in a major public sector bank in the country. His father is a member of the club.
   (a) Not eligible
   (b) Eligible under (v) only
   (c) Eligible under (iii) and (v) only
   (d) Eligible under (iv) only
   (e) None of these
3. Prabhu Sharma's annual income is ₹ 6 lakhs. He is a retired judge of the supreme court. He can pay ₹ I lakh as the membership fee. He played cricket for his home state.
   (a) Not eligible
   (b) Eligible under (i) and (v) only
   (c) Eligible under (i) only
   (d) Eligible under (i) and (iii) only
   (e) None of these
4. Meena Jaswani is daughter of an existing member of the club. Her annual income is ₹ 4 lakh. She can pay ₹ 80 thousand as membership fee. She works in Indian Navy.
   (a) Eligible under (i) and (iii) only
   (b) Eligible under (i) and (iv) only
   (c) Eligible under (iii) only
   (d) Eligible under (iv) only
   (e) Eligible under (iii) and (iv) only
5. Shobha Patil works in a bank. She represents National Badminton team. Her father is retired judge of the local high court. Her annual income is ₹ 6 lakhs. She can pay ₹ 1 lakhs as membership fee.
   (a) Eligible under (i) only
   (b) Eligible under (v) only
   (c) Eligible under (i) and (ii) only
   (d) Eligible under (i) and (v) only
   (e) None of these

Directions (Qs. 6-10): Study the following information carefully and answer the questions given below:

Following are the criteria for granting admission to the candidates in the Post-Graduate course in Software Technology:

The candidate must:

(A) have engineering degree with 65% marks.
(B) not be more than 28 years of age as on 1.12.2010.
(C) have obtained at least 50% marks in the entrance test.
(D) pay a sum of ₹ 1,00,000 at the time of admission as course fee.

However, if a candidate fulfils all the criteria except:

(i) *D* above, but can pay the fee in two installments, the case may be referred to the Director of the Institute.
(ii) *B* above, but he/she has passed post-graduation exam in science with 75% marks, his/her case may be referred to the Admission Coordinator.

Based on the above criteria and information provided against each candidate take a decision in each case. You are not to assume anything. If the data given are not adequate to take a decision mark your answer 'Data inadequate'. The following cases are given to you as on 1.12.2010. Give answer:

(a) if the candidate is to be admitted
(b) if the candidate is not to be admitted
(c) if the case is to be referred to the director
(d) if the case is to be referred to the admission coordinator
(e) if data are inadequate

6. Sneha was 26 years old as on 3rd March, 2010. She has secured 75% marks in post-graduation in chemistry and she is ready to pay ₹ 1,00,000 at the time of admission. She has secured 72% marks in graduation in engineering and the entrance test.
7. Ashutosh has secured 62% and 68% marks in the entrance test and graduation in engineering respectively. He was 27 years old as on 1 April, 2010. He can pay ₹ 1,00,000 at the time of admission.
8. Rishikant was 26 years old as on 22 January. 2007. He has secured 65% marks in graduation in engineering and 83% marks in post-graduation in physics. He has secured 60% marks in the entrance test. He is ready to pay ₹ 1,00,000 at the time of admission.

9. Damodar was born on 19 May, 1985. He has secured 60% and 73% marks in the entrance test and post-graduation respectively. He is ready to pay ₹ 1,00,000 at the time of admission.

10. Khemchand has secured 69% and 65% marks in graduation in engineering and the entrance test respectively. He was born on 10 November, 1983. He is ready to pay ₹ 75,000 at the time of admission and the rest ₹ 25,000 after three months.

Directions (Qs. 11-17): A public charitable trust desires to select 'Medical Officers' for its rural hospital based on following criteria. The applicant must

A. be holding MBBS degree with minimum 50% marks.
B. have minimum 4 years of experience of full-time practice in rural areas.
C. be ready to execute a bond of 3 years of service.
D. have good knowledge of the local language.

In case of the applicant who satisfies all other criteria except—

(i) at (B) above, but has 4 years of full-time experience of either urban or semi-urban area and spent at least 5 years in rural area any time during his life, be referred to Secretary of the Trust.
(ii) at (D) above, but has working knowlege of Hindi, be referred to Assistant Secretary of the Trust.
(iii) at (A) above, but has minimum 45% of marks at MBBS and has done MS or MD with minimum 50%, be referred to the Chief Medical Officer (CMO).
(iv) at (C) above, but is ready to give ₹ 25,000 as security money, be referred to the President of the Trust.

Based on these criteria and the information provided below, decide the course of action in each case. You are not to assume anything. If the data provided is not adequate to decide the given course of action, your answer will be 'data inadequate'. All cases given to you fulfil criterion of age and therefore, no details of age are provided. The cases are given to you today.

11. Sidhant has studied in rural areas while doing his schooling. His father is a farmer. Sidhant completed his MBBS from Mumbai and has six years of experience of practice in a big city. He has good knowledge of the local language and working knowledge of Hindi. He is ready to execute 3 years bond of service. He has done MS with 53% marks.
(a) To be selected (b) Data inadequate
(c) Refer to the CMO (d) Not to be selected
(e) Refer to the Secretary

12. Mangesh has secured 47% marks at MBBS and has done his MD with 62% marks. He has 5 years of experience of running a dispensary in a village and can read, write and speak the local language. He is ready to give a bond of only two years of service and is unable to give security money as he wants to start a rural hospital afterwards in Andhra Pradesh.
(a) Data inadequate
(b) To be selected
(c) Not to be selected
(d) Refer to the President of the Trust
(e) Refer to the CMO

13. Romila is born and brought up in a big urban city. Her father is an industrialist. She has secured 87%, 56% and 48% at HSC, MBBS and MD respecitvely. She is willing to give a bond of 3 years of service. She has worked for 5 years in a rural hospital but can hardly speak the local language. However, she has working knowledge of Hindi. After this experience she plans to settle abroad.
(a) Refer to Asst. Secretary (b) Refer to President
(c) To be selected (d) Not to be selected
(e) Data inadequate

14. Dr Murthy has stood first at MBBS after having obtained 78% marks. He has also completed MS with distinction. As he is planning to go abroad he is unwilling to give three years bond of service. Dr Murthy is fluent in the local language. He has six years of experience of practice in a rural hospital and he is not in a position to give ₹ 25,000 as security money.
(a) Refer to the President (b) To be selected
(c) Not to be selected (d) Data inadequate
(e) None of these

15. Jenifer did her MD after doing her MBBS. She is ready to execute three years bond of service. She has good command over local language as well as Hindi. She has practised for $5\frac{1}{2}$ years in a remote village out of her love for social service. She has obtained 77%, 88%, 47% and 56% at SSC, HSC, MBBS, and MD respectively
(a) Refer to Assistant Secretary
(b) Data inadequate (c) To be selected
(d) Not to be selected (e) None of these

16. Iquabal Kureshi, son of a local politician, has been born and brought up in a village till SSC. Afterwards he studied in a big city and did his MBBS with 69% of marks followed by MS with 57% marks. He is ready to execute a bond of service for 3 years only. He has very good knowledge of the local language. He has done $4\frac{1}{2}$ years practice in the urban areas. He plans to start a rural hospital after this experience.
(a) Refer to the Secretary (b) Refer to the CMO
(c) Data inadequate (d) To be selected
(e) Not to be selected

17. Durga, after obtaining her MBBS and MS, decided to practise in her native village for five years. She knows the local language very well. Her dispensary and small hospital were very popular in the nearby villages. She plans to go to USA and UK after spending 4 more years in India. She has secured more than 60% marks in all the examinations right from SSC to MS. She is ready to execute a bond of 3 years of service.
(a) Refer to CMO (b) Not to be selected
(c) Data inadequate (d) To be selected
(e) None of these

Directions (Qs. 18-25): Study the following information carefully and answer the questions given below:

Following are the criteria for recruiting Managers in an organisation:

The candidate must

A be a graduate with at least 60% marks or a post-graduate with 60% marks either at graduation or at post graduation.
B not be less than 23 years and not more than 30 years as on 1.6.2013.
C have secured at least 50% in the competitive written examination and at least 40% marks in the interview.

D have at least three years' work experience after completing, graduation and/or post-graduation.

In the case of a candidate who satisfies all the criteria except at

(i) A above, but has obtained a PhD degree, his/her case, is to be referred to the Managing Director.

(ii) B above, but has, put in more than five years of work experience, his/her case is to be referred to the Chairman.

Now, based on the criteria and waivers given above and the information provided in each of the following questions, you have to decide a proper course of action as regards status of the candidates. You have are not to assume anything other than the information provided in each question. These cases are given to you as on 1.6.2013. You have to pick-up one of the following answers.

Mark answer (a) if the candidate is not to be recruited.
Mark answer (b) if the case is to be referred to the Chairman.
Mark answer (c) if the candidate is to be referred to the Managing Director.
Mark answer (d) if the candidate is to be recruited.
Mark answer (e) if the data provided is not adequate to take a decision.

18. Adesh Kulkarni has secured 65% marks in his post graduation. He was born on 21st April 1986. He has secured 55% and 45% marks in the competitive written examination and. interview respectively. He has been working for the last five years after his post-graduation.

19. Suresh Oberoi secured 65% marks in post-graduation at the age of 26 in the year 2007. He has been working since then. He has secured 55% and 40% marks in the competitive written examination and interview respectively.

20. Vidisha Ghosh has secured 65% and 60% marks in the competitive written examination and interview respectively. She has also obtained her PhD degree. She was born on 25th November, 1986. She has secured 55% marks in both graduation and post-graduation.

21. Jayant Desai was 28 years old as on 1.7.2011. He has secured 45% and 60% in graduation and post-graduation respectively. He has been working for the last three years after his post-graduation. He has secured 60% marks in the interview.

22. Joseph D'Souza is a first-class post-graduate in Economics. He has been working for four years since then. He has secured 50% and 40% marks in the competitive written examination and interview respectively. He was born on 11th May 1983.

23. Neha Khoobchandani was born on 27th October 1982. She has been working for the last seven years after her graduation in which she secured 65% marks. She has secured 45% and 55% marks in competitive written examination and interview respectively.

24. Arun Bhosle was born 2nd January 1989. He has been working for the last three years after obtaining his PhD in management. He has secured 50% and 55% marks in the competitive written examination and interview respectively; He has secured 55% marks in post-graduation.

25. Usha Agrawal has been working for the last eight years after her graduation, She, has secured 65% and 55% marks in competitive written examination and interview respectively. She was born on 10th August 1985. She is a first-class graduate.

Directions (Qs. 26-30) : Read the following information carefully and answer the questions given below

Following are several eligibility criteria for applying for the post of Manager, IT in an organization :

(i) The candidate should be a postgraduate in Computer Science or information Technology with at least two years' work experience.

(ii) The candidate should be a postgraduate in Mathematics/Statistics with one-year post graduate diploma in Computer Science/Information Technology and at least five years' work experience.

(iii) The candidate should be an engineer with specialisation in Computer Science/Information Technology with at least six years' work experience.

(iv) The candidate should be a graduate having Mathematics as one of the subjects, Master's degree in Computer Applications and at least three years' work experience.

(v) The candidate should be a postgraduate engineer in Electronics and have work experience of at least one year.

An applicant can be eligible under one or more of the conditions given above:

In each question below, details of a candidate are given. You have to study the information provided and decide under which criteria the candidate will be eligible and then find out the appropriate answer given below each question. You are not to assume anything other than the information provided.

26. Mrinal Awasthi has completed her postgraduation in Information Technology after completing her postgraduate degree in Engineering with Electronics. She has been working for the last fifteen months.
(a) Eligible under (i) and (v) only
(b) Eligible under (ii) and (v) only
(c) Eligible under (v) only
(d) Eligible under (ii) only
(e) Not eligible

27. Jacob Mistry completed his postgraduation in Mathematics. He then completed his postgraduation in Information Technology. He has been working for the last two years.
(a) Eligible under (i) and (ii) only
(b) Eligible under (i) and (iii) only
(c) Eligible under (i) only
(d) Eligible under (ii) only
(e) Not eligible

28. Ketan Shah is a graduate engineer in Information Technology. He then completed a postgraduate engineering course in Electronics. He has been working for the last eight years.
(a) Eligible under (i) only
(b) Eligible under (iii) and (v) only
(c) Eligible under (v) only
(d) Eligible under (i) and (ii) only
(e) Not eligible

29. Arun Singh has completed his graduation in Computer Science. He has also obtained Master's degree in Computer Applications. He has been working for the last seven years.
(a) Eligible under (ii) only
(b) Eligible under (iv) only
(c) Eligible under (iii) and (v) only
(d) Eligible under (iii) and (iv) only
(e) Not eligible

30. Sushil Phandse is a first-class Science graduate. He then completed his Master's degree in Computer Applications. He has been working for the last four years. He has also obtained a diploma in Information Technology.
(a) Not eligible
(b) Eligible under (iv) only
(c) Eligible under (iii) and (iv) only
(d) Eligible under (ii) and (iv) only
(e) Eligible under (ii) only

Directions (Qs. 31-35): Read the following information carefully and answer the questions given below: Following are the conditions for shortlisting candidates for the post of Customer Relations Officers (CRO) for XYZ Ltd.
The candidate to be called for interview must
(i) be a graduate in Science, i.e., B.Sc., with minimum 55% marks.
(ii) have at least 3 years experience in selling/marketing.
(iii) have participated in debating or drama or sports at the intercollegiate level onwards.
(iv) have secured minimum 60% marks in the Written Examination (WE).
(v) be ready to deposit ₹10,000 as security deposit. However, in case of a candidate who fulfils all these criteria except
(a) (iv) above, but has secured minimum 60% at B.Sc., may be referred to the Chief Manager, Customer Relations (CR).
(b) (i) above, but has passed M.Sc., i.e., Post-Graduation in Science, with minimum 50% marks, may be referred to DGM (CR).
Based on these criteria and information provided below, decide the course of action in each case. You are not to assume anything. If the data provided is not adequate to decide the given course of action, your answer will be 'data inadequate'. All the candidates given below fulfil the criterion for age.
Mark answer
(a) Selected for interview
(b) Not to be selected
(c) Data inadequate
(d) Refer to the Chief Manager (CR)
(e) Refer to the DGM (CR)

31. Rohan is the son of a marketing executive. Rohan has btained many prizes in inter-university debates and drama events. He has worked as marketing executive for 5 years after completing his B.Sc. and M.B.A., with 62% and 70% marks respectively. He is ready to give security deposit of ₹ 10,000. He has obtained 65% marks in WE.

32. Kamal Kanchan has 6 years experience in marketing cosmetic products. She has done her B.Sc., M.Sc. and M.B.A. with 65%, 56% and 62% marks respectively. She is ready to pay the security deposit. She is good at debating and has won many prizes in inter-college/university events. She is interested in social work.

33. Dinkar has won many prizes in sports at the inter-college/university level. He has seven years experience in direct sales. He has scored 65%, 56%, and 53% marks in WE, B.Sc. and M.Sc. respectively. He is ready to give security deposit and desires to make a career in selling.

34. Krupa is a successful sportsperson having won several prizes in sports and debating at intercollegiate level onwards. At B.Sc., M.Sc. and WE, she has obtained 62%, 55% and 65% marks respectively. She has 5 years experience in sales. Her father is a successful businessman.

35. Jadunath is a Science graduate having done postgraduate diploma in Journalism. He is having 4 years experience of marketing consumer products. He is ready to deposit ₹ 10,000 as security deposit. He had been participating in dramas at the intercollegiate level and above and has won many prizes. He has secured 58% and 65% marks respectively at WE and B.Sc. respectively.

36. Chandrakant is a 30-year-old officer who has worked as sales representative for five years. He is a keen sportsman and actor and has won many prizes in college-university level events. He is ready to pay security deposit of ₹ 10,000. He has obtained 67%, 58% and 55% marks at B.Sc., WE and Diploma in Business. Management respectively.

37. Deepali is a 26-year-old girl having obtained 60%marks at post-graduation, i.e., M.Sc., and 53% and 64% at B.Sc. and WE respectively. Deepali has worked as sales executive for three-and-a-half years. She has obtained many prizes in inter-collegiate events in debating and is ready to deposit ₹ 10,000 as security deposit.

Directions (Qs. 38-44) : Read the following information and answer the questions given below :
A business house desires to recruit Marketing Manager based on the following criteria.
The candidate must :
A be having an MMM (Master's degree in Marketing Management) with 55% or above marks
B have minimum 60% marks at graduation
C have at least 3 years experience as Assistant Marketing Manager
D provide a security deposit of ₹ 50,000
However, if a candidate fulfils all the other criteria except at
(i) 'C' but has at least five years of marketing experience out of which 2 years as Assistant Marketing Manager, be referred to Chief Manager.
(ii) 'D', but can give a bond of service for 3 years, be referred to A.G.M.
(iii) 'A', but has more than 70% marks at graduation and minimum 50% at M.M.M., be referred to DGM.
The age limit is between 27 years and 32 years and all the cases given below fulfil this requirement. Now, based on the above criteria and the information given below, you have to take decision in regard to each case. You are not to assume any information. No further information is available.
Mark answer if
(a) to be referred to DGM
(b) to be referred to AGM
(c) to be referred to Chief Manager
(d) the candidate is to be selected
(e) the candidate is to be rejected

38. Punam Mitra is a dynamic lady having 7 years of marketing experience, out of which 4 years as Assistant Marketing Manager. She has less than 55 per cent marks at MMM but is a keen sportswoman. She has 65% marks at graduation and 72% marks at post-graduation in English literature. She can pay ₹ 50,000 as security deposit.

39. Mohan Balwani comes from a rich family. He has done his MMM with 60 per cent marks and has secured 57 per cent at graduation. He has 6 years of marketing experience, of which 3 years as Assistant Marketing Manager in a big company. He is ready to provide bond of service as well as security deposit of ₹ 50,000. His father was a reputed businessman.

40. Sneha Bhat is ready to pay ₹ 50,000 as security deposit. She has seven years of marketing experience but was

promoted as Assistant Marketing Manager only two-and-a-half years ago. She has excellent academic record having 70 per cent and above marks right from graduation to MMM.

41. Mulayam Bahl has done his MMM after doing his B.Com. and M.Com. He joined as Marketing Trainee and after two years became Assistant Marketing Manager. After four years as Assistant Marketing Manager he has been promoted as Deputy Marketing Manager. He can give ₹ 50,000 as security deposit. He has 65 per cent, 50 per cent and 57 per cent marks at B.Com., M. Com. and at MMM respectively.

42. Ajinkya Deo has been securing 70 per cent and above marks right from SSC to graduation and at MMM also. He is ready to pay security deposit of ₹ 50,000. He has 5 years experience in marketing, out of which three-and-a-half years as Assistant Marketing Manager.

43. Chintan De Souza has done his B.Tech. (Engineering Degree) from I.I.T. Kharagpur and his MMM from a prestigious management institute. He joined as Marketing Trainee and in one year became Assistant Marketing Manager. After working for 3 years he was promoted as Deputy Marketing Manager two years ago. He desires to give bond of service for 3 years. His marks at graduation and MMM are 65 per cent and 60 per cent respectively.

44. Keval Sharma has 8 years of total marketing experience. For last four years he has been working as Assistant Marketing Manager. He is ready to give ₹ 50,000 as security deposit. He was sick at MMM examination and secured 53 per cent marks. His father is a lawyer. Keval has secured 75% and above marks at SSC, HSC as well as at graduation.

Directions (Qs. 45-50): Study the following information carefully to answer the questions given below:

The Institute of Technology runs BC college of Engineering. It applies following criteria for selection of students for admission to the BC College. The student should

A have been born **before** 1.3.81 and **after** 28.2.78

B have obtained minimum 80% marks in aggregate and minimum 90% marks in Maths and Science at HSC,

C have passed intermediate drawing examination conducted by the State government.

D be willing to pay a deposit of ₹ 15,000 as laboratory security

E be found physically fit in the medical examinations being conducted by the institute.

However, if the student fulfills all other criteria except

(i) criteria B, but has obtained minimum 85% marks in aggregate as well as in Maths and Science his case may be referred to the Vice-President of the institute.

(ii) criteria C, but has won award in inter-school drawing competition, his case may be referred to the Principal of the college.

(iii) criteria D, but is a relative of a member of Board of Trustees of the institute, his case may be referred to the chairman of the admission committee.

Based on the above criteria and the information given in each case, you have to take a decision. You are not to assume anything. These cases are given to you as on 28.2.1999.

Mark Answer If

(a) the student is to be admitted

(b) the student is to be referred to Vice-President of the Institute

(c) the student is to be referred to the Principal of college

(d) the student is to be referred to the chairman of the admission committee

(e) the student is not to be admitted

45. Ninad, the only son of a Chartered Accountant who is also a trustee of the Institute has passed the drawing examination of state and has just passed HSC examination securing more than 90% marks in aggregate as well as in Maths and Science. His date of birth is 15.6.1980. He is physically fit as per the medical examination report of the institute. He cannot pay more than ₹ 10,000 against the security deposit. He has passed the state level intermediate drawing examination with grade B.

46. Narendra, whose date of birth is 21.4.79, is a student of Electrical Engineering diploma course. He has scored 85% marks in aggregate and 89% marks in Maths and Science at HSC examination. He has done a part-time course in computer operating. He is medically fit as reported by the Institute's team. He has passed the state level intermediate drawing examination in 1994, obtaining 'A' grade. He has no problem is paying the amount of deposit.

47. Sunita has passed HSC examination with 82% marks in aggregate and 92% marks in Maths and Science. She is found fit in the medical examination and can pay the required amount of deposit. Her date of birth is 1.3.81. She has passed the state level intermediate drawing examination.

48. Virendra, born on 19th January 1980, has passed the HSC examination with 91% marks in Maths and Science and an aggregate score of 84%. He will manage to pay the amount of ₹ 15,000 as security deposit to the institute. He is medically fit as per the report of the institute's team of doctors. He has passed intermediate drawing examination of the state. However, he could never win a prize in any of the inter-school drawing competitions.

49. Ravi, an 18-year-old boy, is the nephew of an industrialist who is a trustee of the institute. Although he did not appear in the drawing examination of state he has won gold medal in an interschool drawing competition. His aggregate marks in HSC is 81% and the marks in Maths and Science are 91%. He is found to be physically fit by the team appointed by the institute. He is not in a position to pay any amount against deposit.

50. Sujit, a 20-year-old boy, has passed his HSC examination securing 87% marks in aggregate and 88% marks in Maths and Science. He is willing to deposit ₹ 15,000 as lab security deposit and is found fit by the team of doctors conducting medical examination. He has passed the intermediate drawing examination of the state.

CHAPTER 14

Evaluating Inferences

This chapter makes you aware about a special type of question pattern which has become a regular trend of almost all type of competitive examination. An inference is a logical conclusion on evidence. A valid inference is believable and realistic. As per the pattern, a passage is given followed by some inferences (conclusions) and the examinee is asked to decide wheather a given inference follows or not in the light of the given passage. Let us see the format below:

What is the problem like?

Problem Format/Sample Problem:- Directions (Qs1-5): Below is given a passage followed by several possible inferences which can be drawn from the facts stated in the passage. You have to examine each inference separately in the context of the passage and decide upon its degree of truth or falsity.

Mark answer:

(1) If the inference is definitely true i.e., it properly follows from the statement of facts given.
(2) If the inference is 'probably true' though not definitely true in the light of the facts given.
(3) If the 'data are inadequate' i.e. from the facts given you can not say wheather the inference is likely to be true or false.
(4) If the inference is 'probably false' though not definitely false' in the light of the facts given.
(5) If the inference is 'definitely false' i.e., it cannot possibly be drawn from the facts given or it contradicts the given facts.

PASSAGE

In its most ambitions bid ever to house 6 crore slum dwellers and realise the vision of a slum - free India, the government is rolling out a massive plan to build 50 lakh dwelling units in five years across 400 towns and cities. The programme could free up thousands of acres of valueable government land across the country and generate crores worth of business for real estate developers. Proliferation of slums has had an adverse impact on the GDP growth for years. Slum dwellers are characterised by low productivity and susceptibility to poor health conditions. The government believes that better housing facilities will address social issues and also have a multiplier effect and serve as an economic stimulus.

Q 1. Development of land occupied by slums in cities of India will not have any effect on the common public.
Q 2. Majority of the slums in cities and towns in India are on prime private properties.
Q 3. Per capita income of slum dwellers is significantly lower than that of those living in better housing facilities.
Q 4. Cities and towns of developed countries are free from slums.
Q 5. Health and sanitary conditions in slums are far below the acceptable norms of human habit in Indian cities and towns.

Before solving the sample problem, we must see the pattern of the problem and find out what it put before the students to think.

A minute look will make you clear that hear examiner has graded the choices very closely. He/she has given two positive choices instead of one.

i. Definite true
ii. Probably true

Further, he/she has also given two negative choices instead of one:-

i. Definitely false
ii. Probably false

This pattern requires a deeper thinking as it leaves before you following areas of confusion:-

1. Definitely true or probably true
2. Definitely false or probably false
3. Data inadequate or probably true
4. Data inadequate or probably false

1. Definitely true or probably true: If the given inferences is a direct consequences of something given in the passage, then it falls under the category of definitely true. But the confusion may arise when the given inference is not directly stated in the passage but it appears 'almost' definitely true to you. But as it is not clearly stated in the passage, you may think that even 'Probably true' could be the answer.

To get rid of this confusion, you have to recheck your reasoning. If the given inference has not been mentioned directly in the passage, then you must have assumed something 'extra' to draw this conclusion. Now, ask some questions from yourself. Such questions must be as the following:

(a) Is the extra assumption as universal truth?
(b) Can the extra assumption never be false?

If you find 'yes' for the question (a) and 'no never' for the question (b), then accept it as definitely true, otherwise pick 'Probably true'.

2. Definitely false or probably false

If the given inference does not follow from the passage, it falls under the category of definitely false. But confusion may arise when the given inference is not given directly in the passage and seems 'almost' definitely false. But as related things are not mentioned clearly in the passage, you think that 'probably false' may be correct.

To get rid of this confusion try to recheck your reasoning. If the opposite of the inference has not been mentioned in the passage, then you must assume something extra to reach your conclusion. Just ask the following questions to yourself.

(a) Is this assumption a universal truth?
(b) Can this assumption never be false?

If you find 'yes' for question (a) and 'no, never' for question (b) then select your answer as definitely false, otherwise probably false will be your correct answer.

3. Data inadequate or probably true

When an indirect inference is drawn from the passage, this confusion may arise. As the given inference is not explicitly mentioned, you think that data are inadequate and that

sufficient information has not been given to draw a conclusion. In such case you may go for 'Probably true'.

To get rid of this confusion, recheck your general mental ability. You can declare the given inference as probably true, if with the help of some extra assumption, the given inference seems likely to be true. Thus, you can some how convince yourself that the inference is likely to be true. On the other hand, you can declare that data are inadequate if no definite conclusion can be drawn from the passage even with the help of some extra assumption. Hence, in such case you can get convinced that the inference is likely to be true or false.

4. Data inadequate or probably false:

When the given inference is drawn indirectly from the passage, such confusion may arise. As it is not explicitly said in the passage, you come to the conclusion that data are inadequate because sufficient information has not been provided to draw a definite conclusion. However, the given inference appears to you in contradiction with the general 'tone' of the passage. Therefore, you are tempted to pick up 'probably false' as your answer.

To get rid of this confusion recheck your general mental ability. You can declare an inference probably false. Only if you are able to find out a reasonable assumption, combining which with what is said in the given passage the inference appears likely to be false.

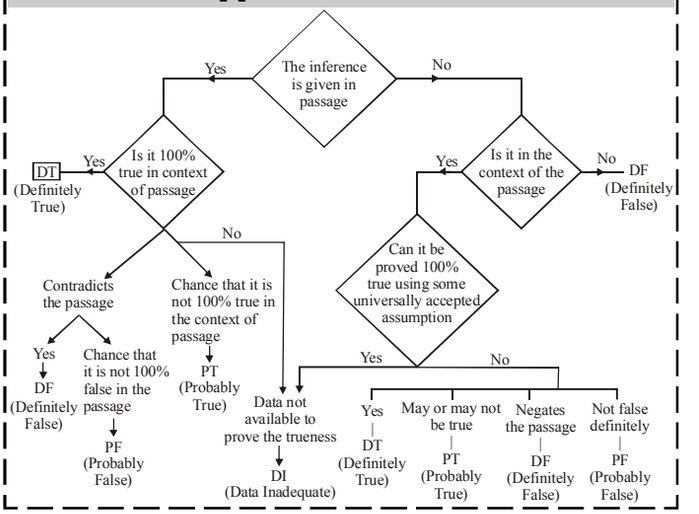
Thus, somehow, you can convince yourself that the given inference is likely to be false. On the other hand, you should pick up the choice 'data are inadequate' only if you can not find any acceptable assumption which, combined with what is said in the passage, may lead to some definite conclusion. In such case, you can not get convinced wheather the given inference is likely to be true or false.

Now, we have come to the end of the chapter and we are now in a position to solve the sample problem.

Solution to sample problem

1. (3) As we have no information about how the freed up land will benifit the common public, hence data inadequate' will be our correct answer choice.
2. (5) The passage says to the contrary getting rid of slums would "Free up ..... valueable government land"
3. (2) Low productivity is likely to lead to low income.
4. (2) As slums have led to a lower GDP growth in India.
5. (1) The passage says that the slums dwellers are susceptible "to poor health conditions".

❑ Shortcut Approach



EXERCISE

Directions : Below are given passages followed by several possible inferences which can be drawn from the facts stated in the passage. You have to examine each inference separately in the context of the passage and decide upon its degree of truth or falsity. Mark answer

(a) if the inference is 'definitely true', i.e., it properly follows from the statements of facts given.

(b) if the inference is 'probably true' though not 'definitely true' in the light of the facts given.

(c) if the 'data are inadequate', i.e., from the facts given you cannot say whether the inference is likely to be true or false.

(d) if the inference is 'probably false', though not 'definitely false' in the light of the facts given; and

(e) if the inference is 'definitely false', i.e., it cannot possibly be drawn from the facts given or it contradicts the given facts.

PASSAGE 1

One of the promising features of the current market is that domestic institutions seem to have turned buyers after a very long time. They have been net buyers this month with inflows exceeding by ₹ 80 crore till early this month. That's admittedly a small amount, but its significance lies in the fact that domestic institutions have been net sellers every month this financial year except in September when their net purchases amounted to a microscopic ₹ 28 crore. This financial year's net sales by domestic institutions amounted to ₹ 2964 crore, which has substantially offset the net inflows of ₹ 3187 crore by FIIs. The net purchases by domestic institutions could indicate that money is once again flowing into equity funds, eager not to miss the widely expected rally. Part of this reason could be a shift in investor portfolios, as people lighten up on debt and put that money into equity.

1. Domestic institutions have been consistently selling only in all the months in this financial year.
2. FIIs bought more than what was sold by domestic institutions this financial year.
3. The equity market is expected to experience a subdued activity in near future.
4. The activities in equity market has direct relationship with the debt market.
5. It is expected that in the early next financial year the gap between the net sales and net purchases will reduce substantially.

PASSAGE 2

One of the greatest advantages a company has over its competitors is system of distribution and product support, i.e., the dealer network. Dealers play a vital role in helping a

company build and maintain close relationships with customers and gain insights into how they can improve their products and services to fulfil customer needs. And a company can achieve customer loyalty through dealer loyalty. Therefore, it must make efforts to build their competence for more effective performance. Dealers who are long established members of a company can get close to customers, but to tap the full potential of such dealers, a company must forge extremely close ties with them and integrate them into its critical business systems. When treated this way dealers can serve as a source of market intelligence, as proxies for customers, and as consultants. Although these investments take the usual form of money, it also includes softer aspects such as training and development.

6. The customers are more forthright in giving their feed-back about a product or a service to the dealers,than to the staff of the company or a surveyor.
7. Trusted and loyal dealers are to be made an integral part of the chain of product launching.
8. A company which has a good chain of loyal dealers need not spend money on advertising.
9. The company should insist dealer loyalty to the extent that the dealer will not sell similar products of any other company.
10. Trusted dealers are the direct link between the company and the customers.
11. Developing a network of dealers is more useful while launching a new product or service.

PASSAGE 3

From the beginning of the new year, the good news continues on the economic front. Following on the heels of encouraging GDP growth figures for the second quarters, we now have happy tidings on the trade front as well. November 2002 saw the country's exports record a healthy 16% increase compared to the corresponding period last year. With this, the growth rate in exports for the first eight months of the current fiscal now stands at a robust 16%. Of course part of the reason for this apparently encouraging performance is because of the base effect–exports actually fell 0.8% during 2001-2002. But that is only part of the reason. For the rest, recovery in global trade and to give credit where it is due, concerted efforts by exporters have played no small role.

12. The percentage growth in exports during 2002-2003 was mainly due to the decreased volume of exports during 2001-2002.
13. The efforts put in by the Indian exporters were comparatively less than their counterparts in developed countries.
14. There has been substantial increase in the extent of trade all over the world during the last financial year.
15. During 2001-2002, the quantum of the country's exports was about three-fourths of that in 2002-2003.
16. There has been a consistent drop in quantum of exports during last three years.

PASSAGE 4

Logically these are rules of conduct. Every country has laid down comprehensive series of practical rules for citizens for resolving mutual contradictory rights and interests. Most of these rules have been laid down to sustain social activities. For instance, many countries have laid down rules to protest against such unsocial activities as theft, attack and murder. These rules are backed by judicial system and executory institutions, which look after the people who obey the rules and also who violate the rules. Wherever the human behaviour is involved such rules are not only for namesake but are necessary also.

17. There is no need to have any machinery to ensure strict adherence to the rules by citizens.
18. There is no need of any rules if individuals do not have to interact with each other.
19. Human beings are susceptible to violate rules.
20. Without rules, human behaviour degenerates into anarchy.
21. There are no rules in countries where citizens' interests and rights do not contradict.

PASSAGE 5

In the initial years, trade policy in our country was primarily aimed at regulating imports having regard to the nascent stage of country's development and the need to encourage domestic production through import substitution measures. However, with the onset of liberalisation the importance of globalisation through trade and making exports the engine of growth of economy has been recognised. Export promotion is now a continuous and sustained effort and specific steps in this direction have been taken and achievements have been made in recent years.

22. Achievements made in the economic growth are attributable to maximum possible export and minimum or almost negligible import:
23. At present, there are no regulatory clutches on exports as exports is recognised as the main force behind economic growth.
24. It is not appropriate to give the credit of economic growth to export.
25. Before the implementation of the idea of liberalisation, our trade policy was not much in favour of free import / export.
26. Import used to affect domestic production in earlier years.

PASSAGE 6

According to the latest numbers, the core sector saw terrific (5.5 per cent) growth recently. This could be a statistical aberration or a flash in the pan. But steel prices are rising and this could be the sign of genuine core sector demand. It will be interesting to see if steel prices do maintain an upward trend. That would be a confirmation of sustainability. If steel is indeed in a situation of high demand, it is a given that downstream manufacturing will be doing well. Core sector industries such as heavy construction, mining, steel, etc. are classified as cyclicals. However, the downtrend has lasted so long that one was afraid that these industries were in permanent decline. One doesn't know whether the apparent improvement will translate into rising stock prices over the long term.

27. The downstream manufacturing units are expected to have a slowdown in near future.
28. For the last few years the core sector has projected a modest growth.
29. The growth in core sector in the recent past was much below 4 per cent.
30. The steel prices will show continuous increase during next few months.
31. The price of steel depends on the activities in the core sector.

PASSAGE 7

Construction industry in India has always enjoyed a special position. We have proved that India is in tune with the times and has not left any stone untouched to compete against the best in international market. Yet. it is the time when other powers are paying attention to developing this sector internationally status. Foundation of an economy lies on its infrastructure. Construction industry has to play a vital role in power, port, road, house construction. railways and industry. Labour-intensive Indian construction industry has to pass through acute changes although it is a bit late. It has to face challenges like advanced designing. odd decision and a growth of demand of work in time, greater mechanisation and intensive construction prevalent in developed countries. The emphasis is laid on modern techniques adopted in construction and high quality in less time.

32. Indian companies can put their gain to maximum by adopting modern equipment and by reducing the time of project.
33. The policy-makers of India have failed to understand the importance of construction industry.
34. The Indian construction companies have to establish themselves in international market.
35. Construction industry in India has been labour-oriented for years.
36. The construction industry of developed nations is of better quality compared to India.

PASSAGE 8

Cotton acreage in India during the current year has fallen by 10% as cotton growers have moved on cultivation of other cash crops. This is the result of the cotton glut in world markets post-September 11 and the consequent slowdown in the world economy. But this scenario brought with it benefits to one segment of the industry — yarn manufacturers as they get higher prices for their produce. Some yarn manufacturers had stocked up low-priced cotton last year. The combined effect of all this is evident in the rise in net profits and net margins of yarn manufacturers.

37. World economy witnessed an upward trend during pre- September 11 period.
38. The farmers will again grow cotton next year due to increased price of cotton yarn.
39. Land used for growing cotton in India is conducive to grow other cash crops.
40. The yarn manufacturers have marginally suffered during post-September 11 period.
41. There has been a huge drop in the supply of cotton during the current year.
42. There has been shortage of cotton in the world market last year.

PASSAGE 9

In India the asbestos industry is growing and employs more than 15,000 people in 75 units which are spread over several states like Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh, etc. Surprisingly, advanced countries are banning cancer-causing asbestos products, but multinational companies are from those countries which are setting up units in developing countries like India. One reason is lack of awareness in the society and indifference of the government machinery of these countries. Prolonged exposure to asbestos dust and fibres can cause lung cancer but most workers in India are too afraid to protest for fear of losing jobs. Some of these factories are operating in Mumbai. Quite a few of the factories in India are not known to take adequate precautions to protect workers from asbestos dust. The Government is taking several steps to provide medical inspection of workers. In fact it has amended Factories Act to extend the provision to even those factories employing less than 10 workers.

43. The asbestos industry is one of the largest industries in India.
44. The asbestos industries in India are located in a few metropolitan pockets only.
45. The advanced countries are concerned and careful to protect health of their people.
46. The demand for asbestos products appears to be growing in India.
47. The Governments of developing countries appear to be not taking appropriate measures while granting permission to set up production units of multinational companies in their countries.
48. The asbestos industry offers better salaries in India as compared to other hazardous industries.
49. The regular medical inspection and treament of asbestos workers has improved the health status in advanced countries.
50. The workers from asbestos industries do not protest against the health hazards and lack of medical facilities as most of them do not suffer from asbestos dust.

PASSGAE 10

The prospects for the Indian economy this year will be influenced by the behaviour of the monsoon and expansion of commerce and trade, The Tenth Plan has envisaged the growth target of 8 per cent. If the agriculture sector does well and the world trade conditions improve, then it is possible to achieve a growth of 6-7 per cent. We need to improve our economy and aim at higher rate of growth in order to feed our population, maintain the standard of living and improve the quality of life. It is now more than 10 years we adopted reforms. We need to go forward in liberalisation but we cannot throw open the market for everything. There are sectors like village industries which need protection.

51. The economic growth last year was below 6 per cent.
52. Free market strategy is beneficial for India only in selected sectors.
53. The current trend of liberalisation is good enough to sustain about 6 per cent growth.
54. The economic growth in the current year will entirely depend on agricultural production.
55. The world trade conditions have major impact on Indian economy.

PASSAGE 11

Pollution amounts to slow murder. Regular exposure to industrial and vehicular pollution leads to life-threatening diseases like asthma, heart problems, cancer and various other disorders. Therefore, nobody has the right to pollute, rich or poor. Industrial and vehicular pollution are growing rapidly across the country. It is not just metropolitan centres that are heavily polluted today but also small and medium towns. Pollution is growing faster than the economy. This is because the western technological model, built on heavy use of energy and materials, is an inherently highly toxic model. It produces huge amounts of toxic pollutants, which can be controlled only if there is careful choice of technology and there is considerable discipline in its use.

56. The spread of pollution has gathered momentum in the recent past.
57. The pollution level in the western world is considerably more than that in India.
58. Proper planning in use of modern technology leads to less pollution in the environment.
59. The industries which use higher level of energy create more pollution.
60. The smaller industrial units contribute proportionately to higher pollution.

PASSAGE 12

The havoc of recurring famines and the subsequent impact of devastating floods are major impediments in the path of social and economic progress of India. No doubt, the nation has made great strides in the judicious use of water — whether it is irrigation to fulfil the objective of food security or water conservation for rain-fed crops or drinking water or groundwater for industrial and agricultural purposes. However, the demand for water is more than the available and sustainable supply. It is so because water resources are not managed by integrated suitable methods for multipurposes.

61. Management of water resources by integrated method is the need of the hour.
62. Unavailability of adequate water has adverse impact on the economic growth in India.
63. There is no shortage of sustainable water for different uses in India.
64. India has achieved success in channelising its water resources.
65. The practice of water conservation has been started in India recently.

PASSAGE 13

The Noon Meal Scheme (NMS) in Tamil Nadu has grown to gigantic proportions today covering students from pre-school to school children upto 15 years of age. Recent studies have seen positive impact in the nutritional status of the children due to the Noon Meal Scheme (NMS). Sample surveys in the high-literacy districts have concluded that NMS has a definite impact on school attendance and dropout rate.

On the employment front, the NMS is claimed as the single largest employment programme for the rural areas with more than 1.6 lakh of people, mostly women, employed as organisers, cooks and helpers.

66. The NMS is applicable to all the children in Tamil Nadu up to age of 15 years.
67. The NMS is run by only women and children.
68. In the high-literacy districts of Tamil Nadu, school attendance seems to have improved after introduction of NMS.
69. The NMS is also being run in big cities and towns of Tamil Nadu.
70. The food items supplied under NMS are very cost-effective.

PASSAGE 14

India suffers from five major problems in dealing with the disabled persons who account for 10 per cent of the country's total population.

One may not be aware that one in every six persons in the world is an individual with disability, that more severely disabled people live in developing countries, that daily 2300 persons are added to the global population of persons with disabilities due to trauma and injury; and that between 1992 and 2025, the number of persons with disabilities in the world is expected to double. It is predicted that developed nations will record a 14 per cent decrease while developing countries will show 47 per cent increase by the end of 2025 A.D.

71. India has developed perspective plan to reduce by 10% the number of cases of disabled persons.
72. The number of disabled persons in developing countries is going to increase at an alarming rate.
73. Developed countries seem to be taking good preventive measures to control its number of disabled persons.
74. By the end of 2025 the developed nations may not have even one per cent of its population suffering from disabilities.
75. The number of cases of disabilities because of trauma and injury is quite negligible.

PASSAGE 15

Not only the smoker, but individuals surrounding him/her can be harmed by tobacco smoke. Children are put further at risk since they are three times more likely to smoke if their parents do.

As far as smokers are concerned one out of every two smokers, who start at a young age and continue smoking throughout their lives, will ultimately be killed by a tobacco related illness. With prolonged smoking, smokers have a death rate about three times higher than non-smokers at all ages.

Stopping smoking decreases health risks associated with tobacco use. It can decrease the burden of diseases such as heart or respiratory diseases. There are clear health benefits including longer life, even for those who quit smoking at the age of 60 and above.

76. Those smokers who start smoking regularly at a young age are less likely to stop it.
77. Non-smoking adults who surround smokers constantly are less likely to be harmed.
78. Non-smokers who are victims of passive smoking have one-third death rate as compared to smokers.
79. Stopping smoking at an old age does not reduce the chances of health risks.
80. If parents stop smoking when their children are young, then the children are less likely to give up smoking.

PASSAGE 16

The Indian economy, despite weak monsoons, is expected to be among the faster growing economies of the world. The Indian equity markets are currently attractively poised with the sensex at low P/E of about 12, making valuations very attractive. Interest rates are at a historic low and may probably go further down, with plenty of surplus liquidity in the system, improvement in business fundamentals and a growing interest in the disinvestment programme. However, despite these positive factors, the Indian equity markets have declined on account of concerns on the US economy and markets and also due to the persisting supply-demand mismatch in the market despite good liquidity in the system.

81. The low interest rates have resulted in availability of more funds to be deployed in the equity market.
82. Indian equity market has never been so attractive to foreign investors in the past.
83. Low interest rate regime has considerably weakened the strengths of business establishments in India.
84. The Indian economy is largely dependent on the status of US economy.
85. There have been few takers in the equity markets in the recent past.

CHAPTER 15

Statement & Arguments

In this chapter, we are going to study arguments. In fact, this is the study what we call the basics of all logic. Do you know what do we do in logic? In logic, we advocate certain point of view with the help of some evidences and certain assumptions and that is called argumentation. This is a fact that almost all segments of analytical reasoning are someway associated with argumentation and this is the reason why study of argumentation is so important for the examinees preparing for various competitive examinations.

Concept of Argument

A sequence of two or more sentences (or statements)/phrases/ clauses that includes a conclusion (or claims), is called an argument. This conclusion of the argument is based on one or more than one statement and these statements may be called premises (propositions). Apart from this, arguments may also have some hidden premises. which may be called assumptions. Let us see the following example:

Example:

Mr. Sharma bought a large quantity of sweets, he must have celebrated some occasion.

Explanation: The foregoing example has two parts:

Part I: "Mr. Sharma bought a large quantity of sweets."

Part II: "He must have celebrated some occasion.

Here, 'Part II' is the conclusion part of the given argument. How has this conclusion (part II) been arrived at? In fact, this conclusion has come out with the help of supporting evidence or premise that is part I of the argument. Did you notice that in this argument part I and part II (Premise and conclusion) are connected by a hidden premise which is not explicitly stated. That hidden premise is "a Large quantity of sweets is bought only on occasions" and this premise may be called an assumption. Hence, in reality the given argument has three parts.

Part I: (Premise) Mr. Sharma bought a large quantity of sweets.

Part II: (Conclusion) He must have celebrated some occasion.

Part III: (Assumption or hidden premise) a Large quantity of sweets is bought only on occasions.

Point to be noted is that part III is an assumption (a hidden premise) that connects part I (premise) and part II (conclusion) and hence, it is a missing link between part I and part II of the given argument.

No doubt that above mentioned example brings to us the basic characteristics of argumentation but it also leaves some questions before us like:

(i) Is this assumption or hidden premise always present in an argument?

(ii) Is the number of premise only one is an argument?

Our answer for both the questions will be a big 'No'. Why so? Let us see the explanations for both the questions given below:

(i) **Explanation for question:** Just consider an argument given as "Mr. Sharma bought a large quantity of sweets. A large quantity of sweets is bought on occasions only. Hence, he must have celebrated an occasion".

Here, we see that this argument has no assumption (hidden premise) because the premise or supporting evidence (Mr. Sharma bought a large quantity of sweets) and conclusion (Hence, he must have celebrated an occasion) are connected by an explicit statement (A large quantity of sweets is bought on occasions only). Remember, an assumption is a hidden premise. It does mean assumption is a missing link in the chain of logic. Therefore, if an argument is complete in itself and does not have any missing link, then it will not have any assumption. In the given argument, the explicit statement (A large quantity of sweets is bought on occasions only) connects premise or supporting evidence and conclusion to make the argument assumptionless.

(ii) **Explanation for question:** Just consider the argument given as "Vandana is tall. She is slim and has beautiful eyes. She has long hair and charming face as well. So, Vandana is a beautiful girl."

Here,

1st premise: Vandana is tall.

2nd premise: She is slim and has beautiful eyes.

3rd premise: She has long hair and charming face as well.

Conclusion: So, Vandana is a beautiful girl.

This proves that an argument can have more than one premises. Further this explanation is also a reply for question(i) as the given argument has no missing link. This argument is complete in itself and hence, it is free of hidden premise or assumption.

Ways of Argumentation: So far, you must have understood the basic concept of argumentation and come to the conclusion that an argument is usually made to make strong a particular point of view in order to convince someone about something.

(i) **Argument based on Analogy:** Analogy based arguments are often used to make strong a particular point of view. In fact analogy is an inference drawn out of a resemblance between particular things, occasion or events (that are known) to a further (unknown) resemblance. For example, if we find a fat-woman eating very much and meet in another woman who is also fat then, by analogy, we expect that

another fat woman would also be eating very much. We can say it in another way that if x, y, z, q are any entities and u, v, w are any attributes then the analogical argument may be represented in the following form :

x, y, z, q all have the attributes 'u and v'

x, y, z have the attribute 'w'

$\therefore$ q probably has the attribute 'w'

EXAMPLE 1. Sachin scored a century in the 1st test against Australia and so did Dhoni; Sachin scored more than 150 runs in the 2nd test against Australia and so did Dhoni; Sachin has scored a double century in the 3rd test against Australia. So, Dhoni will also hit a double century in this 3rd test match against Australia.

EXAMPLE 2. Australia and England have both lost to India in football and hockey. So, India should defeat both the countries in cricket.

Findings: In Example 1, Sachin and Dhoni performed very well in the 1st two matches against Australia. In fact, it seems that Dhoni did the same thing what Sachin did in the 1st and 2nd test. As Sachin has played a great inning scoring a double century in the 3rd test match, hence on the basis of similar situation the conclusion has been made that Dhoni will also make a double century. But we also know that performing good or bad is a matter of chance. It is also a matter of chance that two player (Sachin and Dhoni) performed equally good in the last two test matches. Therefore, we cannot say definitely that Dhoni will make a double century because Sachin has done so. In fact, we can say that he may or may not hit a double century. It can also be said that future performance can not be predicted on the basis of past performances. Thus, it is clear that this analogical argument does not seem strong. Similary, in case of example (2) we can say that India should defeat Australia and England in the game of cricket only because India has defeated both the countries in two different games (Football and Hockey). Hence, the argument given in example (2) also seems weak argument.

Final comment: Analogy based arguments are weak arguments.

(ii) **Argument based on cause:** Such arguments relate a cause with a result. Let us see the examples given below:

EXAMPLE 1. India will win the world cup 2011 because it is the most balanced one day team in the world in present day cricket.

EXAMPLE 2. He came back home late night. He must have gone to watch a movie.

Findings: We see in the foregoing examples that effects have been related with causes. In example (1), the cause (the most balanced one day team) well supports the effect (India will win the world cup) and hence, it is a good argument. But in Example (2) it is argued that since the effect (coming home late night) has taken place, the cause (watching movie) must have occurred. But point to be noted that effect may occur (he may come home late night) because of the other reason as well. Hence, the argument given in the Example (2) is not a good argument or it may be called a weak argument.

Final Comment: Arguments based on causes may be strong or weak or fallacious.

(iii) **Argument based on example:** Sometimes an argument is given by citing some example/examples as premise/premises. Let us see the following examples that will illustrate the concept:

EXAMPLE 1. We should use X brand of cold cream because X brand is used by 'Madhuri Dixit" the famous bollywood actress.

EXAMPLE 2. We must like Roses because Chacha Nehru loved Roses.

Findings: In example (1) we have arrived at the conclusion (we should use X brand of cold cream) by using the premise as example (X brand is used by Madhuri Dixit). In example (2) the conclusion (we must like roses) has come out by using the premise as example (because Chacha Nehru loved it). Here, we can say in case of Example-1 that using certain brand by a particular actress, does not mean that X brand will be liked by all people as likes and dislikes are the personal choices. In example (2), the case is also the same. Everyone cannot like the roses only because Chacha Nehru loved roses.

Final comment: Example based arguments are either weak or fallacious.

Note: In Example-1 and 2, conclusion part is the start of the arguments. Sometimes you can also see that conclusion is given in the middle. It does mean that conclusion part is not always in the last. But it depends on the style of writing of different writers/ authors.

(iv) **Argument based on blind advocacy:** Such argument is like a salesman's argument who argues only for the purpose of selling a particular product. He speaks of the advantages and the benefits of his product. Hence, a salesman argument is one where a conclusion comes out because of the positive points and the benefits that it leads to. Such types of arguments are very common in day to day life.

EXAMPLE 1. Exercise is good for health and students need good health to put hard labour in their studies. This is the reason why every educational institution must have a gym.

EXAMPLE 2. There should be a ban on strikes as they disrupt the normal life of the common people.

Findings: In example-1, the conclusion is that every educational institution must have a gym because exercise is good for health and students need good health. No doubt the good health ensures good mind but it is not practically feasible for every educational institution to have a gym. Hence, Example-1 will be a weak argument. In example-2, ban on strikes is being demanded and this demand is reasonable as argument has negative feature of strike. Hence, example-2 is a strong argument.

Final comment: Such arguments can be both weak or strong.

(v) Argument based on chronology: Very often we see that a conclusion is drawn only on the basis of chronological order of some events. Let us see the examples given below:

EXAMPLE **1.** Computer was invented later than television. Therefore, television has a technology inferior to that of a computer.

EXAMPLE **2.** Song 'B' was released two months earlier than song 'C'. So the former could not be the copy of the latter.

Findings: In example-1, it is assumed that a technologically inferior object always comes before the superior objects. This may be true most of the time but this is not true in 100% cases. Hence, the conclusion given in example 1 is questionable making the given argument a weak one. In 2nd case, it is the possibility that song 'C' was recorded earlier although released later than the song 'B'. Hence, in such a situation the possibility of copying can not be denied and this makes argument given in Example-2 a weak argument.

Final comment: This type of arguments are usually weak and unconvincing.

By now, all the standard ways of argumentation have been discussed in detail. We will now take a look at the key words so that you could easily take out the conclusion part from the given argument. The key words are given below:

So, **Hence,**
Therefore, **Consequently**
Thus,

Apart from above given key words, the conclusion part can also be identified by the certain phrases given below:

As a result
It can be inferred that
Which means that
Which suggests that
Which proves that
Which shows that
It follows that

If you find one of these key words/phrases before any sentence then take that sentence as your conclusion. If the key words/ phrases are absent, then apply your common sense and take out the sentences that can follow one of these key words/phrases and that sentence will be your conclusion.

After having concept of argument we can easily move on to the problems of reasoning which are asked in various exams wherein examinee is required to evaluate the forcefulness of the arguments. On the basis of a statement, arguments are given in the questions and the candidate is required to find out:-

(a) Which argument is strong.

(b) Which argument is weak.

We know that "strong" arguments are those which are both important and directly related to the question. "Weak" arguments are those which are of minor importance and also may not be directly related to the question or may be related to a trivial aspect of the question. To find out if a given argument is strong or not we will move according to the solution steps given below:

Solution steps

Step I: Do the preliminary screening of the given arguments.

Step II: Find out if the given arguments are really follow or not.

Step III: Find out if the given arguments are really desirable (in case of positive argument) / harmful (in case of negative arguments)

Step IV: Find out if the argument and suggested course of action are properly related.

Now, we will discuss all the steps one by one.

Step I: Preliminary screening of the given arguments

At the very 1st level we test how weak an argument is. If at the very 1st level we find the argument weak, then there is no need to go for further steps. In many cases the weak arguments are very clearly visible and we do not need to think much before arriving at the conclusion that they are weak. Such type of arguments come under the following category:

(i) **Doubtful/Ambiguous arguments:** Such type of arguments leave a confused and doubtful impression on our mind. In fact, these arguments do not make it clear that how they are related to a course of action. They also do not give the clear idea about what exactly the author or writer wants to say.

EXAMPLE **1**

Statement: One should enjoy every second of one's life because everyone has to die one day.

Argument: No, because one must think about fulfilling one's ambition in life and should not think about death as one's goal.

Comment: Here, statement and argument are not properly related. Statement suggests to enjoy every second of life. Enjoying life does not mean that one should not follow the path of fulfilling one's ambition. In fact a person can enjoy his/her life in the course of fulfilling his/her ambition. Suppose ambition of a person is to be a cricketer and to achieve something extraordinary in this field. It does mean he will enjoy the every moment he spends in the process of being a cricketer and also the moments he spends after being an established cricketer. In fact, we can say without enjoying work of our own choice, we can not fulfill our ambition. Further the given statement does not give any indication that one should see death as one's goal. Hence, in this case statement and argument leave doubtful and confusing impression on our mind making the given argument very weak.

(ii) **Useless/superfluous arguments:** Such arguments do not do a deep analysis of the given statement. They simply 'glance' at the statement and put them under the category of weak arguments.

EXAMPLE **2**

Statement: Cricket must be banned in India.

Argument: Yes, it has no use.

Comment: Here, the argument does not go deep down into the matter making itself a weak argument.

(iii) **Arguments in the form of question:** Such arguments are very weak in nature as the arguments given in the question form are without any substance and have no technique of argumentation. In fact, in such arguments arguers throw back the question.

EXAMPLE 3

Statement: Should import be banned in India?

Argument: Yes, why not?

Comment: Here, statement is given in the form of question and arguer throws back the question without giving any convincing statement in the form of argument. Hence, the given argument is very weak.

(iv) **Very simple arguments:** Such arguments are very simple in nature. They are given in small sentences but do not get any support by facts or established notions. Further, such arguments are not ambiguous and they are properly related with the statement but because of their simple nature they come under the category of weak arguments.

EXAMPLE 4

Statement: Enjoying life should be the principle of our life.

Argument: No this thinking hardly enable us to do anything.

Comment: Here, the given argument is only a simple assertion which contains no substance. Here, it will come under the category of weak arguments.

Step II: Finding out if the given arguments really follow or not.

If the arguments are rejected at the preliminary step then we do not need to test them further. But, it the preliminary step has been cleared, then we move on to step II.

Case I: When the result follows

At the step II, the result will follow in the cases given below:

(i) **Established fact:** An established fact does mean that it must be universally acknowledged/scientifically established. A result will follow a course of action if it is an established fact that this particular result follows this particular course of action.

EXAMPLE 1.

Statement: Should drinking be avoided?

Argument: Yes, it contributes to bad health.

EXAMPLE 2.

Statement: Should Tendulkar be selected in the team even after 10 years from now?

Argument: Yes, Tendulkar is one of the greatest cricketers in the world.

EXAMPLE 3.

Statement: Married people should live separate from their parents.

Argument: Yes, living separate will give married people a greater freedom.

EXAMPLE 4.

Statement: Should smoking be promoted?

Argument: No, smoking is injurious to health.

Comment: In the foregoing examples, all the given arguments are expected to follow as they all are established facts. No doubt it is an established fact that drinking badly affects our health (Argument in Example 1)

Further, no one can deny the fact that through his great performances Tendulkar has been recognised by the world cricket as one of the greatest cricketers in the world (Argument: Example 2) and it is now an established fact.

Similarly, living separate from parents ensures greater freedom for married people (Argument: Example 3) and it is an established fact. Its also a truth or established fact that smoking is injurious to health (Argument: Example 4). Therefore, all the arguments presented can be said to pass the test of step II.

NOTE : *Point to be noted that arguments given under Example 1, Example 2, Example 3 & Example 4 have passed the step II only so far but it has not yet been determined whether these arguments are forceful or not (strong or not). They will be called strong only when they will pass step III and step IV.*

(ii) **Prediction on the basis of experience:** Such arguments are very near to established facts type of arguments. But, in reality, they are not established facts as they are not yet so universally acknowledged as to be treated as established fact. In fact, such arguments are given on the basis of experiences. Just see the following example:

EXAMPLE 5.

Statement: Captains should not have given their say in selection of national sports teams.

Argument: Yes, it discourages favouritism towards some particular players.

Comment: The result or consequences given in the foregoing example will be a probable result as our experiences suggest this. Hence, this will go for further test.

(iii) **Logically given arguments:** Such arguments are given on the basis of logic. It does mean that the emphasis here is on the logic and not on the established fact or experience. If we see such type of arguments we can easily predict that such cases have occurred in practice. But when we think over such situations with proper logic and reasoning then we arrive at the conclusion that such an argument may be true. Let us see the example given below:

EXAMPLE 6.

Statement: World leader must try for complete disarmament.

Argument: Yes, complete disarmament will make a war free world.

Comment: The foregoing example gives an argument that is logically convincing: The argument is probable as the logic behind it is that if there will be armless world then there will be a war free world. Hence, the argument passes the step II test and will go for further test.

(iv) **Notions of truth:** Such arguments are unquestionable truth because of the simple reason of universal acceptance. It does mean that they are the ideas or thoughts already acknowledged by society. This is the reason why they are very similar to established facts in many ways. The following example illustrates this point:

EXAMPLE 7.

Statement: Should marriages between blood relatives be promoted?

Argument: No, it will promote incest which is a sin.

Comment: No, doubt, the given argument seems strong as it is based on prevailing notion of truth that our society does not allow marriages between blood relatives and consider such marriages as a sin. As, the given argument is likely to be strong it will go for next step test.

Case II (When the result does not follow argument will be rejected).

Following are the cases when results do not follow and arguments are rejected at 2nd level test in step II only.

(i) **Established fact:** If it is an established fact that a particular result will not follow a particular course of action, then the argument will be rejected at step II. Let us see the example given below:

EXAMPLE 8.

Statement: Should smoking be discouraged in the country?

Argument: No, it give relaxation when one get tired and this way contributes to health.

Comment: It is an established fact that smoking is injurious to health and thus, we can say that this argument is incorrect and weak enough to be rejected at step II.

(ii) **Prediction on the basis of experiences:** If the experiences say that the result will not follow then the given argument will be rejected at the step II. Let us see the example given below:

Statement: Should cricketer A be appointed the next captain of the Indian cricket team?

Argument: Yes, it will end the favouritism in selection of team as cricketer A has made allegations of favouritism against the current captain.

Comment: In the foregoing example, the argument suggests that cricketer A should be appointed captain of the Indian cricket team because it will end the favouritism in the team selection. This suggestion has been given on the basis that A has made allegation of favouritism against the current captain. But the experiences say that there have been so many cases when people did the things what they opposed. Hence, saying one thing and doing other is very common. This is the reason why it can not be made sure that A will not do favouritism in team selection only because he has criticised the current captain for this. It is clear that the given argument is weak enough to be rejected in step II.

Note : *This is the exactly opposite to point (ii) in step II (Case I).*

(iii) **Argument with faulty logic:** This is exactly opposite to the point (iii) in step II (case I). Let us see the following example:

Statement: Should the culprits behind the fodder scam in Bihar be punished?

Argument: No, a political vaccum will be created if the culprits get punishment.

Comment: As per the logic, punishing culprits behind the fodder scam in Bihar would please the public and improve the image of the Bihar government. How can it create a political vaccum? This argument has been given with a faulty logic and hence will be rejected in step II only.

(iv) **Argument violating prevailing notions of truth:** Argument that violates unquestionable notions (Ideas that are universally accepted and acknowledged by society) will be rejected in step II. Let us see the example given below:

Statement: Should marriage in blood relations be promoted in India?

Argument: Yes, if the two mature blood relatives are willing to do so, then they can not be prohibited from doing it.

Comment: In our society, it is widely accepted truth (or universally accepted truth) that the marriages between blood relatives are considered to be a sin as it promotes incest. The given argument violates this prevailing notion of truth and is weak enough to be rejected in step II.

(v) **Arguments based on examples/analogies:** Very often it is seen that an example or a precedent is made the basis of an argument. But point to be noted that analogy or example based arguments come under the category of bad arguments. It must be cleared that just because someone did something in the past, the same can not be said as pursuable. Let us see the example given below:

Statement: Should everyone be optimistic in Life?

Argument: Yes, Indira Gandhi was optimistic and this is the reason why she became the prime minister of India.

Comment: Here, the example of Indira Gandhi is given that makes the argument very weak. Thus, such type of arguments are rejected in step II.

(vi) **Arguments based on individual perceptions (or assumptions):** In some cases it is seen that an assumption or view of the author is the substance of an argument. Such arguments neither have proper logic nor substance of established fact. These arguments are called bad arguments and they can be rejected in step II.

Statement: Should India be declared a Hindu Rastra?

Argument: No, it will lead to chaos.

Comment: What message author gives through the argument is view of the author. In fact, declaring India a Hindu Rastra may or may not lead to the result given in the argument. It means that assertion made by argument may or may not follow in actual practice and if the author has a rigid stand on this assertion, it is his/her individual perception or assumption which makes the argument weak enough to be rejected in step II.

Step III: Given arguments are really desirable/harmful

In step II, we come to the conclusion that Example 1, Example 2, Example 3, Example 4, Example 5, Example 6 and Example 7 have passed the 2nd level test and qualified for the step III (3rd level test). Hence, we will take the examples to be qualified for step III one by one:

EXAMPLE 1. Here, the argument is positive and therefore, we have to check the desirability. As, it is a established fact that drinking contributes to bad health and thus it is desirable to avoid it. It is clear how that Example 1 passed the 3rd level test.

EXAMPLE 2. No doubt that at present Tendulkar is one of the greatest cricketers in the world. He will also remain in the list of great ones in the history of the game of cricket. But it is also a truth that he has spent more than 20 years in this game and in three four years he will be a retired cricketer. This is the reason that after 10 years he will definitely not be in team as his selection is impossible. Hence, despite being an established fact the argument is not desirable and is rejected in step III. (Example 2 is a weak argument)

EXAMPLE 3. Here, it is true that living separate from parents gives married people more freedom but at the same time getting freedom at cost of separation from parents is undesirable. Further, separating from parents does mean avoiding duty of taking care of parents. Hence, argument given in example 3 is not desirable and is weak enough to be rejected in step III.

EXAMPLE 4. Marriages in blood relatives promote incest which is a sin and hence harmful for the established norm of society. On the basis of this logic argument given in Example 7 is strong enough to pass the 3rd level test step III.

Now, we have,

Examples qualified for step IV test: Example-1, and Example-4. Rejected examples in step III: Example-2, Example-3.

Note : How to decide a positive argument is really desirable or a negative argument is really harmful, is only the matter of common sense. Just apply your common sense, think over the argument, try to go by proper logic and general norms of society.

Step IV: Finding proper relation between argument and suggested course of action.

What does proper relation between statement and argument mean? In fact, it does mean that argument must be pinpointed on the main issue involved and it should not focus on any irrelevant, insignificant or minor issues. Now, we move on to step IV or final test. As Example-1 and Example-4 have qualified for this test, let us check the three examples one by one:

EXAMPLE 1. Drinking and bad health are properly and directly related. Hence, the given argument "Yes, it contributes to bad health" is a strong argument and this is the final conclusion.

EXAMPLE 2. Smoking and bad health (injurious to health) are directly and properly related. Hence, the given argument "No smoking is injurious to health" is a strong argument and this is the final conclusion.

EXAMPLE 3. Marriages in blood relatives and promotion of incest is directly and properly related. Hence, the given argument "No, it will promote incest which is a sin" is a strong argument and this is the final conclusion.

Now, we have come to the end of this chapter. For the understanding of students, below is given a question format the for the examination.

Question format:

Direction: Each question given below is followed by two arguments numbered I and II. You have to decide which one of the arguments is a 'strong' argument and which is a weak argument.

Give answer (a) If only argument I is strong.

(b) If only argument II is strong.

(c) If either I or II is strong.

(d) If neither I nor II is strong.

(e) If both I and II strong.

Statement: Should smoking be promoted?

Argument: I: No, smoking is injurious to health.

II: Yes, why not?

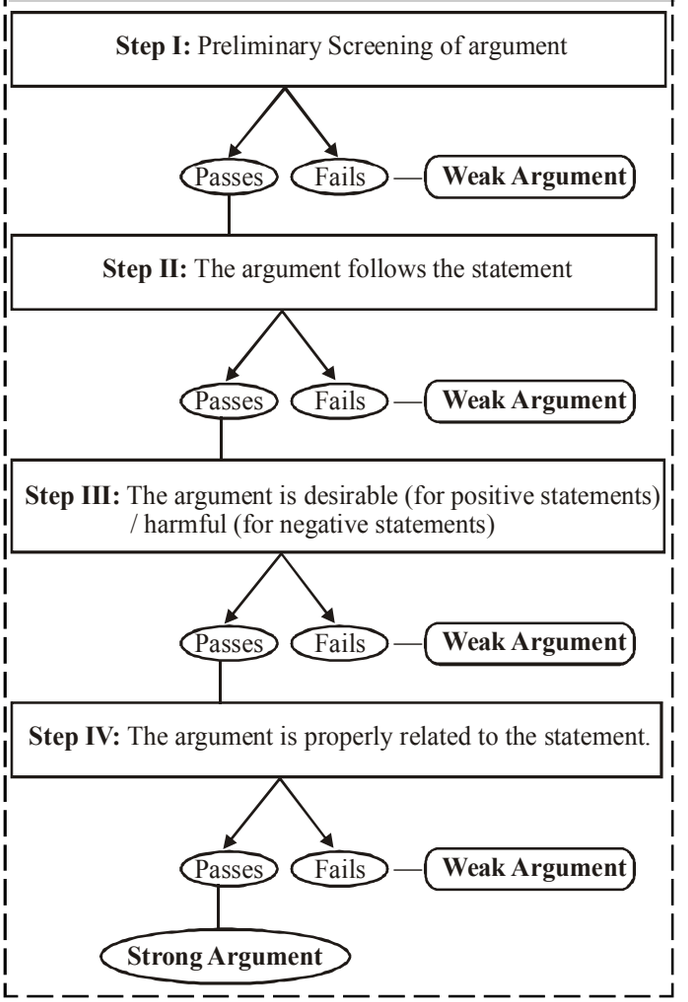
Solution:

I will follow (the reason already given see Example 4)

II will not follow as it is a question back type of argument and such type of arguments are very weak.

Hence, option (A) is the correct answer.

❑ Shortcut Approach



EXERCISE

Directions (Qs. 1-73):
Each question below is followed by two arguments numbered I and II. You have to decide which of the arguments is a 'strong' argument and which is a 'weak' argument.

Give answer (a) if only argument I is strong.
Give answer (b) if only argument II is strong.
Give answer (c) if either argument I or II is strong.
Give answer (d) if neither argument I nor II is strong.
Give answer (e) if both argument I and II are strong.

1. Should all beggars on the roads in the big cities in India be forcibly sent to villages?
Arguments:
I. No, this is grossly unfair and these people may die of hunger if they are sent to villages.
II. Yes, these people create a bad impression of our country in the eyes of the foreigners who visit our country and hence, should be removed.

2. Should all the criminals convicted for committing murder be awarded capital punishment?
Arguments:
I. Yes, this will be a significant step towards reducing cases of murder in future.
II. No, nobody has the right to take any person's life irrespective of the acts of such individuals.

3. Should all the professional colleges in India be encouraged to run their own courses without affiliation to any university?
Arguments:
I. Yes, this is only way to create more opportunities for those who seek professional training.
II. No, this will dilute the quality of professional training as all such colleges may not be equipped to conduct such courses.

4. Should there be a maximum ceiling imposed on the earnings of an individual in an organisation?
Arguments:
I. Yes, this will help equitable distribution of earnings to all the employees.
II. No, the organization should have free hand to decide the pay packets of its employees.

5. Should there be a compulsory military training for each college student in India?
Arguments:
I. No, this goes against the basic democratic right of an individual to choose his/her own programs.
II. Yes, this is the only way to build a strong and powerful nation.

6. Should all such political parties which have less than ten elected members of parliament be derecognised and be debarred from contesting Lok Sabha seats?
Arguments:
I. No, this is against the very basic tenet of our constitution.
II. Yes, this will make the elections more meaningful as there will be fewer competing candidates in a constituency.

7. Should more smaller states be formed from the remaining bigger states?
Arguments:
I. No, a lot of public money will be wasted in the whole process.
II. Yes, this will help in better governance and maximising production in both industrial and agricultural sectors.

8. Should the subsidy on petroleum products be further reduced?
Arguments:
I. Yes, the present subsidy is a drain on national resources; let the consumer share the burden.
II. No, this will have a cascading effect and the prices of all the commodities will sharply increase, creating higher rate of inflation.

9. Should the term of the elected members of parliament be reduced to two years in India?
Arguments:
I. Yes, even otherwise the elections are generally held every alternate year in India.
II. No, every round of parliament election needs huge amount of money and it's a national waste.

10. Should the course fees of all post-graduate courses run by the universities be increased to the level of IITs and IIMs?
Arguments:
I. Yes, this will weed out non-serious students out of higher education.
II. No, the poor brilliant students will not be able to join post-graduate courses.

11. Should all students passing out from the government run colleges and desirous of settling abroad be asked to pay back the cost of their education to the government?
Arguments:
I. Yes, such students who study on the resources of the exchequer should be discouraged to leave the country.
II. No, every citizen has the right to select their place of further study or work and therefore, such a condition is unjustified.

12. Should India support all the international policies of United States of America?
Arguments:
I. No, many other powerful countries do not support the same.
II. Yes, this is the only way to gain access to USA developmental funds.

13. Should there be a complete ban on use of pesticides in agricultural sector?
Arguments:
I. Yes, this the only way to save the underground water from getting polluted with such dangerous chemicals.
II. No this will adversely affect the agricultural production and the pests will damage the crops.

14. Should labour reforms be immediately introduced in India?
Arguments:
I. Yes, this will help increase the productivity in all the sectors in general and in the public sector in particular.

II. No, many other countries have not implemented this so far.

15. Should the subsidy on kerosene be immediately increased further?
Arguments:
I. Yes, this will bring considerable relief to the poorer section of the society as they will be the major beneficiary.
II. No, our economy is otherwise in a difficult stage and it will not be able to withstand any further burden on it.

16. Should all those who have come in contact with the patients suffering from the dreaded infectious respiratory disease be quarantined in their house?
Arguments:
I. No, nobody should be quarantined unless they are tested and found to be infected by the virus causing the disease.
II. Yes, this is the only way to control the spread of the dreaded disease.

17. Should there be only one rate of interest for term deposits of varying durations in banks?
Arguments:
I. No, people will refrain from keeping money for longer duration resulting into reduction of liquidity level of banks.
II. Yes, this will be much simple for the common people and they may be encouraged to keep more money in banks.

18. Should there be a cap on maximum number of contestants for parliamentary elections in any constituency?
Arguments:
I. Yes, this will make the parliamentary elections more meaningful as the voters can make a considered judgment for casting their vote.
II. No, in a democracy any person fulfilling the eligibility criteria can contest parliamentary elections and there should be no such restrictions.

19. Should all those who are found guilty of committing homicide or abetting homicide be either given capital punishment or kept in jail for the entire life?
Arguments:
I. Yes, only such severe punishments will make people refrain from committing such heinous acts and the society will be more safe.
II. No, those who are repentant for the crime they committed should be given a chance to lead a normal life outside the jail.

20. Should there be a restriction on the migration of people from one state to another in India?
Arguments:
I. No, any Indian citizen has a basic right to stay at any place of their choice and hence they cannot be stopped.
II. Yes, this is the way to effect an equitable distribution of resources across the states in India.

21. Should the school teachers be necessarily involved in the census activities?
Arguments:
I. No, this will adversely affect the quality of teaching programme.
II. Yes, the teachers are the best fit for this job.

22. Should India engage into a dialogue with neighbouring countries to stop cross-border terrorism?
Arguments:
I. Yes, this is the only way to reduce cross-border terrorism and stop loss of innocent lives.
II. No, neighbouring countries cannot be relied upon in such matters; they may still engage in subversive activities.

23. Should all the utility services be immediately brought under essential services to avoid frequent agitation and strikes by the employees?
Arguments:
I. No, otherwise how the employees may voice their grievances and demands?
II. Yes, the employees are becoming more and more greedy and they take the general public for ride by striking.

24. Should all the unauthorised structures in the city be immediately demolished?
Arguments :
I. No, where will the people residing in such houses live?
II. Yes, this will give a clear message to general public and they will refrain from constructing unauthorised buildings.

25. Should the railways in India be privatised in a phased manner like other public sector enterprises?
Arguments :
I. Yes, this is the only way to bring in competitiveness and provide better service to the public.
II. No, this will pose a threat to national security of our country as multinationals will enter into the fray.

26. Should the TV channels depicting sex and violence be banned?
I. No. Any ban is against the fundamental right of citizens of a democratic set-up.
II. Yes. Parents feel awkward while watching such serials along with their children.

27. Should promotions in the armed forces be made on the basis of seniority?
I. No. Patriotism is the most important attribute for such promotions.
II. No. It would be an injustice to those juniors who are more deserving and suitable for higher positions.

28. Should automation be restricted only to industrial sector in our country?
I. Yes. In other labour-intensive sectors, our vast unemployed population can be beneficially deployed.
II. No. The automation in other sectors will also yield commendable result to boost our country's economy which will, in turn, take care of unemployment.

29. Should the freedom of press be curbed in a democratic country?
I. Yes. Press, if not curbed, may go to any extent to lead the public astray.
II. No. Why should we do that?

30. Should sex education be included in the syllabus of junior college as a compulsory subject?
I. Yes. It would certainly help in eradicating the existing misunderstanding and make the younger generation physically and mentally healthier.

II. No. It will destroy the moral fibre and the highly esteemed value system which we have inherited from our forefathers.

31. **Statement:** Should one close relative of a retiring government employee be given a job in government in India?
Arguments:
I. Yes, where else will the relative get a job like this?
II. No, it will close doors of government service to competent and needy youth.

32. **Statement:** Should purchase of gold by individuals be restricted in India to improve its foreign exchange position?
Arguments:
I. Yes, interference on customers' right and freedom is desirable.
II. No, business interest has to be guarded first.

33. **Statement:** Should teaching of 'Sanskrit' be made compulsory at school level in India'?
Arguments :
I. No, where are the trained teachers to teach this language?
II. Yes, we should be proud of our ancient language.

34. **Statement :** Should all education be made free for girls and women of all ages in India?
Arguments :
I. No, this will weaken our present social structure.
II. Yes, this is the only way to bring back glory to Indian womanhood.

35. **Statement:** Should private colleges offering professional courses like Engineering, Medical, Management be banned in India?
Arguments:
I. Yes, such courses should be run by Government Colleges only.
II. Yes, no other country allows private colleges to run professional courses.

36. **Statement:** Should slum-dwellers be provided free houses in big cities and metropolises?
Arguments:
I. No, most of the slum dwellers are poor and illiterate.
II. Yes, providing food and shelter to every citizen is the responsibility of any welfare state.

37. **Statement:** Should polythene bags be banned in India?
Arguments:
I. No, the polythene bags are very cheap and are very convenient.
II. Yes, that is what many countries are doing.

38. **Statement:** Should military service for short duration be made compulsory to all eligible youth in India?
Arguments:
I. Yes, Indian defence forces are badly in need of jawans and officers.
II. Yes, it will inculcate discipline and national pride in youth.

39. **Statement:** Should India switch over to capitalist economy from the present mixed one?
Arguments:
I. No, for this to happen there will be a need of constitutional amendments and our prestige will lower.
II. Yes, this is the only way out adopted by developing countries.

40. **Statements:** Should admission in schools be controlled by the state government concerned?
Arguments:
I. Yes, it will reduce the importance of the members of the school management.
II. No, this will result in delays, compromise with the quality of schools, and give rise to corruption.

41. **Statements:** Should corporal punishment be fully restricted in schools?
Arguments:
I. No, in low age and formative years punishment helps develop the standard of discipline and values.
II. Yes, physical punishment hurts the self-respect of an individual and such person turns to violent ways of life.

42. **Statements:** Should metropolitan corporations be changed to public limited companies to enhance their efficiency and reduce expenditure?
Arguments:
I. Yes, it will bring in commercial management and citizens would expect good service at reasonable rates.
II. No, it will end the local elections because there will be no elected corporator.

43. **Statements:** Should the joining of college students in National Cadet Corps (NCC) be made mandatory?
Arguments:
I. Yes, it is in vogue in many countries.
II. No, it will distract attention and those who are weak in studies will fail.

44. **Statement:** Should government-established higher level Institutes of Technology (IITs) be privatised?
Arguments :
I. Yes, privatisation will make these institutes financially healthy, competitive and quality-conscious.
II. Yes, privatisation is the key of the new era - can we survive without it?

45. **Statement:** Should vacations of court judges be reduced?
Arguments :
I. Yes, it will speed up judicial process and many people are likely to get justice in reasonable time.
II. Yes, it is a sign of British legacy, why should we carry it further?

46. **Statement:** Should the practice of transfers of clerical cadre employees from one city to another government office be stopped?
Arguments :
I. No, transfer of employees is a routine administrative matter and we must continue it.
II. Yes, it involves lot of governmental expenditure and inconvenience to many compared to the benefits it yields.

47. **Statement:** Should higher qualification be the only criteria for internal promotions in any organisation?
Arguments :
I. Yes, why not ? In fact only higher qualification is more important than other factors.
II. No, quality of performance and other factors are more important than mere higher qualification in case of internal promotion.

48. **Statement:** Should Indian scientists working abroad be called back to India?
Arguments :
I. Yes, they must serve the motherland first and forget about discoveries, honours, facilities and all.
II. No, we have enough talent, let them stay where they want.

49. **Statement:** Should getting primary education be incorporated as a fundamental right in India?
Arguments:
I. No, what is the use? Have we fulfilled our duties regarding other fundamental rights?
II. Yes, this is what all the developed countries have done.

50. **Statement:** Should scheme of lotteries be completely stopped in India?
Arguments:
I. No, many state governments will have to stop some of their developmental activities which they fund from surplus generated by their lottery scheme.
II. No, many unemployed youth who sell lottery tickets to earn their livelihood will face hardship.

51. **Statement:** Should dependents of India's freedom fighters be given benefits of reservation in jobs?
Arguments:
I. Yes. We should keep the dependents happy as the freedom fighters have fought for a noble cause.
II. No. We already have too many reservations; let us not add to it.

52. **Statement:** With the opening of the economy in India, should all workers unions be banned?
Arguments:
I. No, workers unions are not banned in other economically advanced countries.
II. No, a level-headed workers union can really do wonders both for workers and economy.

53. **Statement:** Should we grant permission to reputed private companies to construct civil air ports for general use in India?
Arguments:
I. Yes, why not? It would be both economical and effective.
II. No, it may pose danger to security and safety of India.

54. **Statement:** Should 'computer knowledge' be made a compulsory subject for all students at secondary school certificate (S.S.C.) examination in India?
Arguments:
I. No, our need is 'bread' for everyone, we cannot follow western models.
II. Yes, we cannot go ahead without equipping our children with computers.

55. **Statement:** Should 'literacy' be the minimum criterion for becoming a voter in India?
Arguments:
I. No, mere literacy is no guarantee of political maturity of an individual.
II. Yes, illiterate people are less likely to make politically wiser decision of voting for a right candidate or party.

56. **Statement:** Should schemes of voluntary retirement be introduced in all sick public sector units in India?
Arguments:
I. Yes, excess and inefficient staff is one of the reasons of sickness of public sector organisations.
II. Yes, this is what private and multinational companies do in developed countries.

57. **Statement:** Should postal services be privatised in India?
Arguments:
I. Yes, it will make life easy for the citizens of India.
II. No, privatisation is not a panacea for all the problems, even private service can be equally bad.

58. **Statement:** Should system of offering jobs only to wards of government employees be introduced in all governments offices in India?
Arguments:
I. No, it denies opportunity to many deserving individuals and government may stand to loose in the long run.
II. No, it is against the principle of equality and does government not owe responsibility to all its citizens?

59. A supplement of Vitamin A and Zinc may boost children's resistance to Malaria (Observation from one experiment conducted last year in a village 'X'). Which of the following, if true, would weaken the statement?
(a) No adult in village 'X' has fallen sick because of Malaria.
(b) For the last three years, there has hardly been any case of a child being affected by Malaria from village 'X'.
(c) The experiment with Vitamin A and Zinc is being duplicated in other nearby cities adjacent to village 'X'.
(d) Vitamin A and Zinc are readily available in village 'X'.
(e) Villages adjacent to 'X' have reported substantial cases of Malaria affecting mostly children.?

60. After establishment of industrial estate 5 years ago at village 'D' the economic condition of its villagers has improved considerably. Which of the following, if true, contradicts the statement?
(a) A branch of a bank has been opened at village 'D' during last three years.
(b) The shops of village 'D' report increase in the sale of entertainment items during last two years.
(c) Very recently hotels with beer bars have come up in village 'D'.
(d) Money-lenders and the branches of banks report demand for second loan to return earlier loan.
(e) Number of buses run by private and state government agencies halt at village 'D'.

61. If statements 'Wealthy persons are not necessarily happy' and 'Dashrath is not happy' are assumed to be true then which of the following is definitely **True**?
(a) Dashrath is not wealthy
(b) Dashrath is wealthy but not happy
(c) Dashrath is not wealthy and therefore not happy
(d) Other wealthy persons are not as unhappy as Dashrath
(e) None of these

62. "Forty per cent of our products are sold in rural area, fifty-three per cent are sold in semi-urban area, sixty per cent of employees are from rural area." Which of the following statements is **definitely true**?
(a) The company's products are purchased only by its employees and their family.

(b) The company does not desire to recruit urban employees.
(c) The company's products are required in big urban cities and metro areas.
(d) The company holds approximately 90% of the market share in its product line.
(e) None of these

63. "We do not advertise, our product speaks for itself."- Statement of manufacturer of two-wheeler 'BJA'. Which of the following, if true, would support and strengthen this statement?
(i) The prices of BJA two-wheelers are on higher side.
(ii) 'BJA' has won award for Quality Control Systems.
(iii) The BJA two-wheeler is sleek-looking and has good colours.
(iv) The salaries of BJA employees are better than government services.
(a) Only (i) and (ii) (b) Only (ii) and (iii)
(c) Only (iii) and (iv) (d) Only (i), (ii) and (iii)
(e) None of these

64. 'All trees bear fruits'. 'Fruits of some trees are not good for human health'. If the two statements are assumed to be true, then which of the following statements is definitely TRUE?
(a) All fruits are not sweet and tasty.
(b) Some fruits are healthy for some human beings.
(c) Some trees do not bear fruits.
(d) Human beings should eat fruits for remaining healthy.
(e) None of these

65. Nikhil remembers that his sister Kranti had certainly been in Pune for one day after 16th February but before 21st February. While his mother remembers that Kranti had certainly visited Pune before 20th February but after 17th February. If both of them are correct, then on which day in February had Kranti visited Pune?
(a) Either 18th or 19th (b) 19th
(c) 18th (d) Data inadequate
(e) None of these

66. "Cases of food poisoning have been reported from village 'X'. After a dinner party arranged for 100 people, 68 have been admitted to the hospital, 36 cases are reported to be out of danger. The food, which was cooked and stored in open space for almost 12 hours earlier was served after reheating it. Investigation is going on." A news report.
Which of the following can be **hypothesized** for the above information?
(a) Late night dinner parties for large number of people result in food poisoning.
(b) Stale food is likely to be the cause of food poisoning.
(c) Cases of food poisoning need to be handled carefully.
(d) Cases of food poisoning are not reported in urban dinner parties.
(e) Food poisoning is a matter of chance and no preventive measure can be suggested.

67. A study reveals that families where parents cannot give sufficient time for their children report disturbed behaviour of children and poor performance of the child at school. Which of the following, if true, would **weaken** the statement?
(a) Studies regarding behaviour of children of single parents have reported similar findings.
(b) A good and healthy child-parent relationship helps the child adjust at home and school.
(c) A high correlation has been found between good adjustment of the child with his peers/ friends and good performance in the school.
(d) Schools have now started counselling parents to spend happy and meaningful time with their children.
(e) Well adjusted children show lot of love and respect for their parents.

68. "If you want hassle-free holiday package for city `M' then join only our tour. Hurry up, only few seats available." An advertisement of 'XYZ' Tourist Company.
If the above statement **is true** then which of the following has been **assumed** while making the statement?
(a) Travel packages offered by other tour operators are neither cheap nor comfortable.
(b) Now-a-days people have lot of money to spend for their comforts.
(c) No seats may be available with other tour operators for city 'M'.
(d) Many people desire convenience and comfort while going for a holiday.
(e) The XYZ Company strictly follows the concept of 'first come first serve'.

69. The state government's agency 'HOUSEWELL' has constructed 500 flats for middle class but in spite of shortage of houses it has not even received hundred applications. Each of the following, if true, could explain this **except:**
(a) The quality of construction of 'HOUSEWELL' is reported to be very poor.
(b) The location of the flats is not convenient either by bus or from railway station.
(c) A private builders scheme which has come up on the adjacent plot is overbooked inspite of higher cost and 100% advance payment.
(d) The cost and conditions of payment are quite demanding and are slightly higher than usual government housing schemes.
(e) School and market facilities are yet to come up.

70. In order to qualify in an examination having six subjects, one has to get at least 50% and above marks separately in any four subjects and minimum 35% and above in each of the six subjects. If the total of 25% candidates have qualified in the examination, then which of the following is definitely **true**?
(a) 25% of the students have secured 50% and above in all the six subjects.
(b) 75% of the students could not get at least 35% marks in all the six subjects taken together.
(c) 50% of the students got 50% and above in four subjects but only half of them could get 35% and above in all the subjects.
(d) Only 25% of the students could get at least 35% and above marks in each of the subjects.
(e) None of these

71. "A non-resident Indian trust of the US has finalised a project to provide training for the new techniques on the basis of 'no profit no loss' to Indian doctors." — A statement by trustees.
If this statement is true, then which of the following expresses truly the above statement?
(a) It is not possible even for rich doctors of India to go to the US for training.
(b) Indian doctors are capable but they do not want to learn new techniques.

(c) The non-resident Indian trust is being run by renowned Indian doctors settled abroad who have acquired skills in the US.
(d) To save the life of patients, new medical knowledge and skills are required.
(e) It is necessary for the trust to do social work in order to earn repute.

72. The government of state *G* has banned spitting and smoking at public places from Jan 1, 2016. In case of violation the guilty will be either fined a sum of ₹ 1000 or jailed. — Notification of the government of state *G* on Dec 31, 2015.
Which of the following, **if true**, would weaken the statement?
(a) State *G* is known as an important tourist destination among all states of India.
(b) Legal implementation machinery is neither aware of this notification nor it has adequate manpower and resources to implement it.
(c) There is a possibility of increase in the number of tourists coming to this state.
(d) Many foreigners and tourists have expressed their unhappiness and surprise at the lack of cleaniness at public places of state *G*.
(e) Public cooperation is possible for the measures initiated by the government of state *G*.

73. The government of state *B* has now decided to form a department for information and technology so that coordination between information and technology is made easier. — A news
If the above statement **is true**, then which of the following has been **assumed** in the statement?
(a) State *B* is regarded as lax in implementing public welfare measures.
(b) Compared to other states, state *B* has achieved tremendous success in information and technology.
(c) There is a need to coordinate and regularise the work of information and technology of all states.
(d) State *B* has enough money to spend for such purposes.
(e) It is necessary for state *B* to demonstrate its anxiety over information and technology.

CHAPTER 16

Statement & Assumptions

INTRODUCTION

Assumption are essential part of analytical reasoning. This is the reason why in various competitive examinations, examinees are asked to identify assumptions. Particularly, in examinations to be conducted for the recruitment of probationary officers in banks at least five such questions are surely given. In this chapter, we will see how to identify assumptions. Before we go ahead, we must have a look at a common format of the problem as it will give you a clear idea of the questions to be asked in the examination.

PROBLEM FORMAT (SAMPLE PROBLEM)

Directions: In every question given below a statement (or a passage) is followed by two assumptions number I & II. An assumption is something supposed or taken for granted. You have to consider the statement and the following assumptions and then decide which of the assumptions is implicit in the statement.

Mark answer:

(1) If only assumption I is implicit.
(2) If only assumption II is implicit.
(3) If either assumption I or assumption II is implicit.
(4) If neither of the assumption is implicit
(5) If both the assumptions are implicit.

Statement: "A" television — the largest selling name with the largest range" — an advertisement.

Assumptions: **I.** There is a demand for televisions in the market.
II. 'A' television is the only one with wide variations.

The given statement in the problem format is an advertisement. This is the one form of statement. But the statement may be in different forms like it can be in the form of a passage; in the form of a single line; in the form of a notice; in the form of an appeal; in any other different forms.

WHAT DOES AN ASSUMPTION MEAN?

In the chapter "Argumentation: Basics of analytical reasoning," it has all ready made clear that assumption is the hidden part of an argument. It does mean that an assumption is something which is assumed, supposed and taken for granted. In fact, when a person says something, he does not put everything into words and leaves some part unsaid as why does he ? so?

He does so because he takes this unsaid part for granted. In other words he thinks this unsaid part will be understood without saying and hence there is no need to put this (unsaid part) into words. It does mean this unsaid part is hidden in the given statement and this hidden part is called assumption. Let us understand it another way. Just remember your childhood days when you were used to solve the given arithmetic problem without leaving any single step. But what you do today? Today your approach is totally different. Today you leave easier steps as you assume that the person who see your solution, is very much aware of these elementary operations. Therefore, this is an example of assumption. Suppose, we have given the following arithmetical problem:-

$$\frac{24}{8} + 5 + 9 \times 2 + 4 = ?$$

Childhood Approach (Case I)

$\frac{24}{8} + 5 + 9 \times 2 + 4$ —— step I

$= 3 + 5 + 18 + 4$ —— step II

$= (3 + 5) + (18 + 4)$ —— step III

$= 8 + 22$ —— step IV

$= 30$ —— step V

Today's Approach (Case II)

$\frac{24}{8} + 5 + 9 \times 2 + 4$ —— step I

$= 30$ —— step II

What did you notice in the above two cases? In case I, there are five steps and in case II, there are only two steps. It does mean, in case II, three steps of case I (step II, step III & step IV) have been left. Hence, in case II these steps of case I (step II, step III & step IV) are hidden and thus come under the category of assumptions.

To get the concept of assumption more clearly just suppose a thrilling one day international cricket match is going on between India and Australia. The Australian team has scored 300 runs but while chasing the score India has made 280 runs in 48 overs and now, the situation is India has to score 21 runs to win the match in remaining two overs. As Yuvraj Singh is batting, you say your friend - "No need to worry as Yuvraj is a big hitter. India will win the match". What you find in this statement. In fact this statement has two parts:-

(i) No need to worry as Yuvraj is a big hitter.

(ii) India will win the match.

Now, this is the time to think over these two parts. How do you relate them? Obviously, by assuming that a big hitter may score

21 runs in remaining two overs. Therefore, this is another example of assumption. The above statement can be written in three parts as follows:-

(i) No need to worry as Yuvraj is a big hitter.

(ii) A big hitter may score 21 runs in 2 overs (Hidden part/ Assumption)

(iii) So, India will win the match.

Let's get more ideas about assumption with some simple examples given below:-

EXAMPLE 1.

Statement: Of all the mobile sets manufactured in India M brand has the largest sale.

Assumption: The sale of all the mobile sets manufactured in India is known.

Comment: The given assumption is valid. Here the statement makes a claim that of all the mobile sets manufactured in India, M brand has the largest sale. In fact, without knowing sale figures of all mobile brands manufactured in India, No such claim about M brand could be made. Hence, it must have been implicitly assumed in the given statement that sale figure of all brands is known.

EXAMPLE 2.

Statement: Tendulkar is in great form and therefore, India is going to beat Australia in upcoming test series.

Assumption: **I.** Tendulkar will give a good performance in upcoming series against Australia.

II. Tendulkar will score a triple century in the upcoming series against Australia.

Comment: Assumption I is valid as the statement says that Tendulkar is in great form and therefore, India is going to beat Australia in the upcoming test series. It does mean that it is assumed in the statement that Tendulkar will perform well in the upcoming test series against Australia and on the basis of that good performance India will beat Australia. But II is invalid because if Tendulkar is in great form, that does not mean he will surely hit a triple century. He may or may not do so. Hence, assumption II is not hidden in the statement.

EXAMPLE 3.

Statement: The next meeting of the governing body of the society X will be held after one year.

Assumption: Institute X will remain in function after one year.

Comment: The given assumption is valid as we know that the common practice is to hold meetings of only those bodies that are functional. Hence, if in the given statement, it is said that the next meeting of the governing body of the society X will be held after one year, it does mean that the announcer must be assuming that the society will remain functional after one year.

EXAMPLE 4.

Statement: The student is too clever to fail in the examination.

Assumption: Very clever students do not fail in the examination.

Comment: This is a valid assumption. As per the given statement the student will not fail (This is an effect) as he/she is very clever (This is a cause). Clearly, it has been assumed in the statement that very clever students do not fail.

HOW DOES A SINGLE WORD OR PHRASE MAKE DIFFERENCE?

A. Definitive Words Cases:

Just consider the words like 'all', 'only' , 'best', 'strongest', 'certainly', 'definitely', etc. These are some words that put a greater degree of emphasis or more weight on the sentence than some others. In fact, these words impart a kind of exclusiveness to the sentence and thereby reduce the scope/range of the sentence. In fact, some kind of certainty are associated with all these words. Let us consider the following examples:-

EXAMPLE 5.

Statement: The crisis of onion has worsened and the government should make every effort to boost import of onion.

Assumption:

I. Import are the best solution to avert the onion crisis.

II. Import are a reasonably good solution to the onion crisis.

III. Import are the only solution to overcome the onion crisis.

IV. The onion crisis will definitely be averted by boosting import of onion.

V. The onion crisis will probably be averted by boosting import of onion.

Comment: In the above mentioned example, the assumption II and V are valid. But I, III and IV are not valid. The reason is that there is use of definitive words (best, only and definitely) in case of I, III and IV. The given statement mentions a fact that crisis of onion has worsened and then makes a suggestion that imports of onion should be boosted. In fact the statement assumes that import should help to overcome onion crisis or that import is a good/reasonably good solution to the onion crisis. But, there is no any hint that import is the only solution/best solution/ a definitely effective solution.

Therefore, the example given above illustrates how a definitive word may give a different 'tone' to a sentence.

B. Cases of Conjunctions:

The words like 'because', 'therefore', 'in spite of', 'despite', 'so', 'after', 'even', 'although' 'as', 'as a result of' are some significant conjunctions. When a statement has two clauses and the clauses are connected by a conjunction, then the nature of conjunction helps in detecting the assumption that the author suggests in his statement. Suppose '*x*' is one clause of a sentence that mention an event (or fact/ suggestion) and '*y*' is the another clause of the same sentence which mentions another event (or fact/ suggestion), that depending upon the conjunction. We can conclude the following assumption.

(i) *x* (because / as a result of) *y* ⇒ It is assumed that 'y' leads to x.

EXAMPLE 6.

Statement: You will find improvement in your English after taking classes in institute M.

Valid Assumption: An institute may help in improving English.

(ii) *x* (therefore/hence) *y* ⇒ It is assumed that '*x*' leads to '*y*'.

EXAMPLE 7.

Statement: The Indian batsman Sachin Tendulkar has become the 1st man to score 50th test century, therefore all Indians must be feeling very proud on his achievement.

Valid Assumption: An achievement by a fellow countryman makes other citizens proud.

(iii) *x* (even after / despite / in spite of) *y* ⇒ It is assumed that usually *x* does not occurs when *y* occurs.

EXAMPLE 8.

Statement: There was a theft in the city mall last night inspite of the maximum security arrangement made by the police.

Valid Assumption: Maximum security arrangement is usually sufficient to prevent theft.

(iv) Not '*x*' (even after / in spite of / despite) '*y*' ⇒ It is assumed that usually *x* occurs when *y* does.

EXAMPLE 9.

Statement: There was no out break of any epidemic even after the continuous deposition of rain water for six days.

Valid Assumption: Deposition of rain water usually leads to epidemic.

C. Cases of Connotive Phrases:

Sometimes words used by the author is slightly indirect or unconventional. This is the reason you may miss the thing what author want to say. Such indirect or unconventional words are called connotative or connotive phrases. For example "It is true that ...." can be put / written as.

(i) It can be claimed with reasonable degree of truth that...

(ii) It would be correct to say that...

(iii) Even the most sceptic of men would agree that....

Similarly, "It is false" is put / written by the author as

(i) It is baseless to say that ...

(ii) It would be highly misleading to say that....

(iii) Nothing could be farther from truth than...

Note:

These days, the role of connotative phrases is very limited in the questions asked because they are given so that they do not escape your eyes whenever one come across them.

Condition for Invalidity of Assumptions

(a) Restatement

If the given assumption is a restatement of the given statement, then the given statement will be invalid. In fact, in such case, same thing is put in different words.

EXAMPLE 10.

Statement: Of all the computer brands manufactured in India, brand M has the largest sale.

Invalid Assumption: No other brand of computer has as high a sale as brand M.

(b) Long-drawn Conclusion: If an assumption makes too far fetched logic or long drawn conclusion, then it will be considered as invalid assumption.

❑ Shortcut Approach

Assumption will be implicit if	Assumption will not be implicit if
• it is in context of passge	• not in context of statement or passage
• it is not directly mentioned	• it is directly mentioned in the statement
• it is a mandatory factor condition for the statement to be correct.	• it is not an accepted fact or cannot be truly inferred
	• there is use of definitive words
Note : *The assumption must follow all the above rules for it to be implicit.*	• it is a restatement or a long-drawn conclusion or negative rephrasing or a converted syllogism form.

EXERCISE

Directions (Qs.1-80): In each question below is given a statement followed by two assumptions numbered I and II. An assumption is something supposed or taken for granted. You have to consider the statement and the following assumptions and decide which of the assumptions is implicit in the statement. Give answer

(a) if only assumption I is implicit.
(b) if only assumption II is implicit.
(c) if either assumption I or II is implicit.
(d) if neither assumption I nor II is implicit.
(e) if both the assumptions I and II are implicit.

1. **Statement:** The Union Government has decided to with draw existing tax relief on various small savings schemes in a phased manner to augment to its tax collection.
Assumptions:
I. People may still continue to keep money in small savings schemes and also pay taxes.
II. The total tax collection may increase substantially.

2. **Statement:** The Government has decided to levy 2 per cent surcharge on the tax amount payable for funding drought relief programmes.
Assumptions:
I. The Government does not have sufficient money to fund drought relief programmes.
II. The amount collected by way of surcharge may be adequate to fund these drought relief programmes.

3. **Statement:** The 'X' Housing Finance Company has offered its services to search a suitable home at no extra cost for those who avail housing loan from it.
Assumptions:
I. The customers may prefer to take housing loan from 'X' Housing Finance Company as they can save a lot of their time and money spent in searching a suitable home.
II. No other Housing Finance Company has offered any such extra services alongwith housing loan.

4. **Statement:** World Health Organisation has decided to double its assistance to various health programmes in India as per capita expenditure on health in India is very low compared to many other countries.
Assumptions:
I. The enhanced assistance may substantially increase the per capita expenditure on health in India and bring it on par with other countries.
II. The Government funding is less than adequate to provide basic medical facilities in India.

5. **Statement:** The managing committee of Galaxy Housing Society has requested all its members to segregate the biodegradable garbage and put them in different containers.
Assumptions:
I. Other housing societies may follow the same practice as this will help conserve environment equilibrium.
II. The members of Galaxy Housing Society may respond positively to the request made by the managing committee.

6. **Statement**: The Government should engage the army for the rapid rehabilitation of people affected by the cyclone.
Assumptions:
I. Only the army can rehabilitate the people affected by the cyclone quickly.
II. The Army can take up works other than war also.

7. **Statement:** His recent investment in the shares of Company 'A' is only a gamble.
Assumptions:
I. He may incur loss on his investment
II. He may gain from his investment.

8. **Statement:** Government should deploy the Army at least this year for the rehabilitation of people affected by cyclone because cyclone visits suddenly.
Assumptions:
I. The Army should be deployed for all such sudden incidents.
II. Some precautionary plan is being made to prevent destruction caused by cyclone.

9. **Statement:** It is not true always that the adoption of latest technology ensures increased productivity and capacity.
Assumptions:
I. It is possible to prove that increased productivity and capacity are due to adoption of latest technology.
II. The productivity and capacity can be increased by discarding latest technology.

10. **Statement:** If you could not collect the required amount by oral call you must publish an advertisement in a widely read newspaper.
Assumptions:
I. People rarely respond to oral call.
II. Generally people are reluctant to read an advertisement in a newspaper.

11. **Statement:** The regulatory authority has set up a review committee to find out the reasons for unstable stock prices.
Assumptions:
I. The investors may regain confidence in stock market by this decision.
II. The review committee has the expertise to find out the causes for volatility in the stock market.

12. **Statement:** "Get rid of your past for future, get our new-generation fridge at a discount in exchange of old."—An advertisement
Assumptions:
I. The sales of the new fridge may increase in the coming months.
II. People prefer to exchange future with past.

13. **Statement:** The multinational fast food chains are opening up a large number of Plus Coffee Shops with piped modern music in different cities of India and these are serving various snacks with coffee.

Assumptions:

I. A large number of persons may become regular customers of these coffee shops.

II. The people will like to enjoy the comfortable environment while drinking coffee with snacks.

14. **Statement:** Railway officials have started ten new trains and increased the frequency of fourteen running trains.

Assumptions:

I. The existing trains are not sufficient to provide accommodation to all passengers.

II. The new and additional trains would have sufficient passengers so that they will be economically viable.

15. **Statement:** The Government has decided to overhaul the structure of school fee by linking the school fee with the incomes of parents.

Assumptions:

I. Parents will furnish correct information about their incomes to schools.

II. Parents will agree to pay the fee after the overhauling of the fee structure.

16. **Statement:** The government has decided to hold the employers responsible for deducting tax at source for all its employees.

Assumptions:

I. The employers may still not arrange to deduct tax at source for its employees.

II. The employees may not allow the employers to deduct tax at source.

17. **Statement:** The *X*-Airlines has decided to increase the passenger fare by 15 per cent with immediate effect.

Assumptions:

I. The demand for seats of the *X*-Airlines may remain unchanged even after the hike of fare.

II. Other airline companies may also hike the passenger fares.

18. **Statement:** "Our bank provides all your banking requirements at one location." — An advertisement of a bank

Assumptions:

I. Customers prefer to carry out all banking transactions at one place.

II. People may get attracted by the advertisement and carry out their transactions with this bank.

19. **Statement:** Bank '*A*' has announced reduction of half percentage on the interest rate on retail lending with immediate effect.

Assumptions:

I. Other banks may also reduce the retail lending rates to be in competition.

II. The Bank '*A*' may be able to attract more customers for availing retail loans.

20. **Statement:** The '*M*' Cooperative Housing Society has put up a notice at its gate that salespersons are not allowed inside the society.

Assumptions:

I. All the salespersons will stay away from the '*M*' Cooperative Housing Society.

II. The security guard posted at the gate may be able to stop the salespersons entering the society.

21. **Statement:** 'Country *A* would explore all channels to diffuse current tensions with country *B* and bring peace on its borders.' — Statement of spokesperson of country *A*.

Assumptions:

I. Country *A* is desirous to diffuse current tension and restore peace with country *B*

II. It is desirable to use more than one channel when complex issues are to be settled amicably.

22. **Statement:** Two months ago, it was announced that central government pensioners would get dearness relief with immediate effect but till date, banks have not credited the arrears.' — A statement from a Pensioners' Forum.

Assumptions:

I. Most of the banks normally take care of the pensioners.

II. Two months' time is sufficient for the government machinery to move and give effect to pensioners.

23. **Statement:** 'The bridge was built at the cost of ₹ 128 crores and even civil bus service is not utilising it. What a pity to see it grossly underutilised!' — A citizen's view on a new flyover linking east and west sides of a suburb.

Assumptions:

I. The building of such bridges does not serve any public objective.

II. There has to be some accountability and utility of money spent on public projects.

24. **Statement:** 'Use our product to improve memory of your child; it is based on natural herbs and has no harmful side-effects.' — Advertisement of a pharmaceutical company.

Assumptions:

I. People generally opt for a medical product which is useful and has no harmful side effects.

II. Improving memory of child is considered as important by many parents.

25. **Statement:** The traders of State *K* would observe a statewide bandh as the state has failed to meet their demand to resolve sales tax and other issues.

Assumptions:

I. The traders of State *K* have earlier 'tried other usual procedures to get their problems solved.

II. State *K* is not keen to solve the problem of traders.

26. **Statement:** The government has decided to pay compensation to the tune of ₹ 1 lakh to the family members of those who were killed in railway accidents.

Assumptions:

I. The government has enough funds to meet the expenses due to compensation.

II. There may be reduction in incidents of railway accidents in near future.

27. **Statement:** The X-Airlines has temporarily suspended flights to a few destinations for the next four days due to, the strike call given by the Pilots' Association.

Assumptions:

I. The airlines may be able to restore all the flights after four days.

II. The Pilots' Association may withdraw the strike call within four days.

28. **Statement:** The civic authority has appealed to the citizens to cooperate in curbing rampant power theft in the locality.
Assumptions:
I. The local citizens group may respond to the request and form groups of people to detect such cases of power theft.
II. Those who are engaged in stealing power may stop doing so for fear of social castigation.

29. **Statement:** The Parent Teacher Association (PTA) of a school has informed the Principal that they will not send their children to the school unless the school authority reduces the fees with immediate effect.
Assumptions:
I. Majority of the parents may agree with the PTA and may not send their wards to the school.
II. The school authority may accede to the demand of the PTA and reduce the fees.

30. **Statement:** 'If you are first class graduate, our organization is the best place for you to work."— An advertisement.
Assumptions:
I. No other organisation may require first class graduates as they may not get adequate number of applications.
II. First class graduates may get attracted and apply to this organization.

31. **Statement:**
The 'X' group of employees' association have opposed Voluntary Retirement Scheme to the employees of some organisations.
Assumptions:
I. Only those employees who are not efficient may opt for the scheme.
II. The response of the employees may be lukewarm towards the scheme and it may not benefit the organisation to the desired level.

32. **Statement:**
In view of the statement on the on going strike of work by the employees, the government has agreed to work out an effective social security programme.
Assumptions:
I. The striking employees may not be satisfied with the announcement and continue the agitation.
II. The striking employees may withdraw their agitation with immediate effect and start working.

33. **Statement:**
The head of the organisation congratulated the entire staff in his speech for their sincere effort to bring down the deficit and urged them to give their best for attaining a more profitable position in future.
Assumptions:
I. The employees may get motivated and maintain and if possible enhance their present level of work.
II. The employees may now relax and slow down in their day-to-day work as there is no immediate threat of huge deficit.

34. **Statement:**
"Private Property, trespassers will be prosecuted" — A notice on a plot of land.
Assumptions:
I. The passerby may read the notice and may not tresspass.
II. The people are scared of prosecution and, therefore, never tresspass.

35. **Statement:**
The government has set up a fact-finding mission to look into the possible reasons for the recent violence in the area.
Assumptions:
I. The mission may be able to come up with credible information about the incidents.
II. The people in the area may cooperate with the mission and come forward to give de tailed information related to the incidents.

36. **Statement:**
An advertisement: If you want to follow the footprints of an ideal leader, wear 'X' brand of shoes.
Assumptions:
I. Most people like to become ideal leaders.
II. One can't become ideal leader unless one wears 'X' brand of shoes.

37. **Statement:**
Every citizen must be committed to the social cause; if he is not, his citizenship should be cancelled.
Assumptions:
I. It is possible to find out whether a citizen is committed to the social cause or not.
II. Citizenship of any citizen can be cancelled.

38. **Statement:**
An advertisement: Now you can own a new car in just ₹ 1,999 per month.
Assumption:
I. People do not want to buy used cars.
II. Most people can afford to pay ₹ 1,999 per month for a new car.

39. **Statement:**
Beware of dogs. Our dogs do not bark but they are trained to distinguish between genuine guests and intruders.
Assumptions:
I. Barking dogs rarely bite.
II. Our dogs could be dangerous for intruders.

40. **Statement:**
Without reforming the entire administrative system, we cannot eradicate corruption and prejudice from the society.
Assumptions:
I. The existence of corruption and prejudice is good.
II. There is enough flexibility to change the administrative system.

41. **Statement:** Since the First Five-Year Plan, the Indian policy-makers have acknowledged the services rendered by the voluntary agencies.
Assumptions:
I. Voluntary agencies have been in existence in India even before the First Five-Year Plan.
II. Voluntary agencies have contributed in designing of the First Five-Year-Plan.

42. **Statement:** As a nation we are committed to protect and promote the interests of all those who are socio-economically vulnerable.
Assumptions:
I. It is possible to protect and promote interests of socio-economically weak people.
II. A nation should have certain commitments for its people.

43. **Statement:** 'This book has been written for every one and does not require readers to have any experience in handling computers.' - An author of a book on computers.
Assumptions :
I. It is possible to learn computers with the help of a book only.
II. It is possible to learn to handle computers only after reading the book.

44. **Statement:** Health is the foundation of well-being,virtue, prosperity, wealth, happiness and salvation.
Assumptions :
I. Happiness results in health and well-being.
II. People desire to be happy, prosperous and virtuous.

45. **Statement :** Authorised Indian Edition — illegal for sale or distribution outside India' – A publisher's note on the cover page of a book.
Assumptions :
I. Indian editions may be in demand in nearby countries.
II. It may be possible to sell or distribute this book outside India.

46. **Statement:** Pollution is a slow poison, and therefore social scientists and the media must work together to create sensitivity among people.
Assumptions:
I. Media is well informed and aware about the effects of pollution.
II. Media is likely to influence people to raise their sensitivity towards various problems.

47. **Statement:** In country 'X' a public servant cannot claim immunity from prosecution for any objec tionable act committed while performing his official duty.
Assumptions:
I. A public servant is likely to commit an objectionable act while performing his of ficial duty.
II. Every one is equal before law.

48. **Statement:** The entry of multinational companies in India has led to higher efficiency of the Indian companies who are competing with them.
Assumptions:
I. Employees of multinationals may serve as models for Indian company's employees.
II. Competition will reduce many Indian com panies to ashes.

49. **Statement:** 'Only candidates having B. Tech., B.E., MBA and MCA with at least one year's exposure to software will be considered for admission to our course' - Admission criterion of a reputed software training institute.
Assumptions:
I. The candidates having requisite back ground are likely to complete the course successfully.
II. The institute is choosy about admitting candidates to its courses.

50. **Statement:** 'If you would like to have any more infor mation of XYZ credit card, call us between 8.00 am and 8.00 pm 365 days of the year' -An advertisement of 'XYZ credit card company'.
Assumptions:
I. Competition produces more friendly customer service.
II. The company values and appreciates the need of the customers.

51. **Statement:**
"Learn computer at no cost and make your life more meaningful."— An advertisement
Assumptions:
I. People prefer to join courses without any fees.
II. Knowledge in computer makes life more meaningful.

52. **Statement:**
The government has decided to launch food-for-work programme in all the drought-affected areas.
Assumptions:
I. The government has the machinery to implement the food for work programme in all the drought affected areas.
II. There is enough food in stock to implement the programmes successfully.

53. **Statement:**
The head of the organisation has decided to reward those employees who will help reducing expenditure substantially by suggesting innovative techniques.
Assumptions:
I. The employees may be able to come out with innovative ideas.
II. The employees may be encouraged to apply their mind to earn the reward.

54. **Statement:**
The civic authority has advised the residents in the area to use mosquito repellents or sleep inside nets as a large number of people are suffering from malaria.
Assumptions:
I. Local residents have enough money to arrange for the repellents or nets.
II. People may ignore and continue to get mosquito bites as they have other pressing needs.

55. **Statement:**
"If you are intelligent, we are the right people for improving your performance." — An advertisement of a coaching class.
Assumptions:
I. Brilliant students prefer to join coaching classes.
II. Coaching classes help the students improve their performance.

56. **Statement :** "I have not received telephone bills for nine months in spite of several complaints." – A telephone customer's letter to the editor of a daily.
Assumptions:
I. Every customer has a right to get bills regularly from the telephone company.
II. The customers complaints point to defect in the service which is expected to be corrected.

57. **Statement:** Greater public participation results in good civic governance.-Statement of Municipal Commissioner of city W.
Assumptions:
I. The municipal office is not competent to effect good civic administration.
II. Good civic governance is a matter of collective will and effort of the people and administration.

58. **Statement:** To investigate the murder of the lone resident of a flat, the police interrogated the domestic servant, the watchman of the multistoried buildings and the liftman.
Assumptions:
I. The domestic servant, watchman and the liftman can give a clue about the suspected murder.
II. Generally in such cases the persons known to the resident is directly or indirectly involved in the murder.

59. **Statement:** If the city bus which runs between Cheka Naka and Vande Park is extended to Shramnagar, it will be convenient. Appeal of residents of Cheka Naka to the city bus company.
Assumptions:
I. The convenience of the city bus company is much more important than the needs of the consumers.
II. The city bus company is indifferent to the aspirations of the residents of Shramnagar.

60. **Statement:** Desirable and qualified candidates should submit their application form along with the requisite qualifications and their biodata. An advertisement for admission.
Assumptions:
I. Merely having qualification and aptitude for the job does not make a person suitable for it.
II. Many candidates shall apply because they are interested in the job.

61. **Statement:** It has been felt that at a time when the airline faces tough competition and is passing through critical economic conditions, the remaining higher posts should be opened for outside professionals instead of filling them up with insider applicants.
Assumptions:
I. The internal applicants only aspire for promotion without contributing much to the organisation.
II. It is most likely that problems of the airline would be solved by experienced professionals.

62. **Statement:**
KLM company has decided to issue debentures to mop up resources.
Assumptions:
I. KLM company has already explored other sources to collect resources.
II. There are very few competitors in the market for the products of KLM company.

63. **Statements:**
"Tenders are invited from reputed contractors for pre-qualification." —The tender notice of a public sector company
Assumptions:
I. The company seeks to do quality business.
II. The company expects contractual and competitive rates for its work.

64. **Statements:**
The state government 'X' is committed to restrict smoke levels on the roads of the metropolis as per the desired parameters.
Assumptions:
I. It is possible to determine the smoke levels.
II. A committed government can carry forward welfare measures for its people.

65. **Statement:** Last century was the century of fundamental rights and let the forthcoming century become that of.excellence. — An appeal from a noted lawyer
Assumptions:
I. Every century should be marked for a particular purpose.
II. The human race is ready to focus its atten tion on aiming at excellence in every sphere of life.

66. **Statement:** 'You are expected to be frank and objective while writing your self appraisal report'. -An instruction for writing self-appraisal report
Assumptions:
I. Unless cautioned, people may tend to be a little shy and less objective while writing their self-appraisal report.
II. Every self-appraisal report helps the person in his further development.

67. **Statement:** The higher echelons of any organisation are expected to be models of observational learning and should not be considered as merely sources of rewards and punishments.
Assumptions:
I. Employees are-likely to be sensitive enough to learn by observing the behaviour of their bosses.
II. Normally bosses are considered as sources of reward and punishment.

68. **Statement:** 'But, out of A, B, C and D products, you buy 'B', which alone is based on international technology. - A shopkeeper tells a customer.
Assumptions :
I. The customers normally accept the recommendation of the shopkeeper.
II. Use of international technology is supposed to ensure better quality standards.

69. **Statement:** The organisation should promote employees on the basis of merit alone and not on the basis of length of service or seniority.
Assumptions:
I. Length of service or seniority does not alone reflect merit of an employee.
II. It is possible to determine and measure merit of an employee.

70. **Statement:** Highly brilliant and industrious students do not always excel in the written examination.
Assumptions:
I. The written examination is good mainly for mediocre students.
II. The brilliant and industrious students cannot always write good answer in the exam.

71. **Statement:** This book is for those who are interested to know more about 'Indian History'.
Assumptions:
I. People who are interested to know about the author may read books.
II. Every book may attract some readers.

72. **Statement:** Helping the poor is the real service to humanity.
Assumptions:
I. Poor people are in need of help from others.
II. If we do not help poor, we will not be called human beings.

73. **Statement:** The police in India have to cope with tremendous stress and strain while having to maintain security and order.
Assumptions:
I. In other countries, the police do not have to undergo stress and strain while doing their duty.
II. The police are expected to do their duties without stress or strain.

74. **Statement:** If children are to manage our world in future, then they need to be equipped to do so.
Assumptions:
I. The world has always educated children.
II. It is possible to educate children.

75. **Statement:** There is no shopping complex for this colony; people have to go to the main market.
Assumptions :
I. This colony may be far from main market.
II. The people do not want to go to the main market.

76. **Statement:** Take this 'oven' home and you can prepare very tasty dishes which you were unable to prepare earlier. An advertisement of X brand oven.
Assumptions:
I. The user knows the procedure recipe of tasty dishes but does not have the proper oven to cook.
II. Only 'X' brand oven can cook very tasty dishes.

77. **Statement:** "Please note that the company will provide accommodation to only outside candidates if selected." A condition in an advertisement.
Assumptions:
I. The local candidates would be having some or other arrangement for their stay.
II. The company plans to select only local candidates.

78. **Statement:** Traffic police be given anti-pollution masks while manning traffic signals.
Assumptions:
I. The traffic police will be able to carry out their work after wearing the mask.
II. The masks are safe for wearing and there is no other adverse side-effect.

79. **Statement:** Please do not use lift while going down an instruction on the top floor of a five-storey building.
Assumptions:
I. While going down the lift is unable to carry any load.
II. Provision of lift is a matter of facility and not of right.

80. **Statement:** You can win over new people by your warm smile.
Assumptions:
I. It is necessary to win over new people.
II. It is possible for us to smile warmly at unknown people.

Directions (Qs. 81-85): In each question below is given a statement followed by three assumptions numbered I, II and III. An assumption is something supposed or taken for granted. You have to consider the statement and the assumptions and decide which of the assumptions is implicit in the statement. Then decide which of the answers (a), (b), (c), (d) and (e) is the correct answer.

81. **Statement:** "A rare opportunity to be a professional while you are at home." An advertisement for computer-literate housewives by a computer company
Assumptions :
I. Some housewives simultaneously desire to become professional.
II. Computer industry is growing at a fast pace.
III. It is possible to be a professional as well as a housewife.
(a) Only I and II (b) Only II and III
(c) Only I and III (d) Only II
(e) None of these

82. **Statement:** India's economic growth has come at a terrible price of increased industrial and vehicular pollution.
Assumptions :
I. Pollution is a part of industrial society.
II. Indian economic growth is based on only industrial growth.
III. A country desires economic growth with manageable side-effects.
(a) Only 1 (b) Only II
(c) Only I and III (d) Only III
(e) None of these

83. **Statement:** Efforts to develop technologies more appropriate to the needs of the poorest sections of society need to be further intensified.
Assumptions :
I. Nothing is impossible if proper efforts are made.
II. Technology needs are different for different sections of society.
III. It is possible to develop appropriate technologies for various economic sections of the society.
(a) Only I (b) Only III
(c) Only II (d) Both II and III
(e) None of these

84. **Statement:** "We have the distinction of being the only company in India as well as the second in the world to have won an ISO 9002 quality certification in our line of business" - Statement of Company X's Chairman.
Assumptions :
I. There were not many companies in the line of business of Company 'X'.
II. Getting ISO 9002 in the line of business of Company 'X' is not easy.
III. The Company 'X' desires to expand its business.
(a) Only I (b) Only II
(c) Only III (d) Only II and III
(e) None of these

85. **Statement:** Co-operative social relationships contribute to develop individual potentialities.
Assumptions :
I. Every society desires to prosper.
II. Individuals desire to develop their potential.
III. It is possible to create and maintain co-operative environment in a society.
(a) Only II and III (b) Only II and I
(c) Only I and III (d) Only II
(e) None of these

CHAPTER 17

Statement & Conclusions

INTRODUCTION

In this type of questions, a statement is given followed by two conclusions. We have to find out which of these conclusions definitely follows from the given statement.

WHAT IS A 'CONCLUSION'?

'Conclusion' means a fact that can be truly inferred from the contents of a given sentence. Conclusion is the art of judging or deciding, based on reasoning.

DIRECTIONS (for Examples 1 to 3) : In each of the following questions, a statement is given followed by two conclusions I and II. Give answer :

(a) if only conclusion I follows;
(b) if only conclusion II follows;
(c) if either I or II follows;
(d) if neither I nor II follows;
(e) if both I and II follows;

EXAMPLE 1.

Statement : The oceans are a storehouse of practically every mineral including uranium. But like most other minerals, it is found in extremely low concentration – about three gms per 1000 tonnes of water.

Conclusions : I. The oceans are a cheap source of uranium.
II. The oceans harbour radiation hazards.

Sol. (d) I can not be concluded as most of the minerals are available in similar concentration levels in oceans. II is out of context of the sentence.

EXAMPLE 2.

Statement : Today, out of the world population of several thousand million, the majority of men have to live under government which refuse them personal liberty and the right to dissent.

Conclusions : I. People are indifferent to personal liberty and the right to dissent.
II. People desire personal liberty and the right to dissent.

Sol. (b)

EXAMPLE 3.

Statement : It has been decided by the Government to withdraw 33% of the subsidy on cooking gas from the beginning of next month—A spokesman of the Government.

Conclusions : I. People no more desire or need such subsidy from government as they can afford increased price of the cooking gas.
II. The price of the cooking gas will increase at least by 33% from the next month.

Sol. (d)

DIRECTIONS (for Examples 4 to 5) : In each of the following questions, a statement is given followed by two conclusions I and II. Give answer :

(a) if only conclusion I follows;
(b) if only conclusion II follows;
(c) if either I or II follows;
(d) if both I and II follow.
(e) if neithter I nor II follows;

EXAMPLE 4.

Statement : Interest rate will be fixed on the basis of our bank's rate prevailing on the date of deposit and refixed every quarter thereafter.

Conclusions : I. It is left to the depositors to guard their interest.
II. The bank's interest rates are subject to change on a day-to-day basis depending on market position.

Sol. (b)

EXAMPLE 5.

Statement : The government of country X has recently announced several concessions and offered attractive package tours for foreign visitors.

Conclusions : I. Now, more number of foreign tourists will visit the country.
II. The government of country X seems to be serious in attracting tourists.

Sol. (d)

❑ Shortcut Approach

For a adhere conclusion to follow a statement must to the following **4 GOLDEN RULES.**

1. The conclusion must be in context of the statement. If out of context than it does not follow.
2. The conclusion must support the contents of the statement. If it negates than it does not follow.
3. The conclusion must be truly inferred. If there is some doubt that it may or may not be correct or truly inferred, than it does not follow.
4. The conclusion must not repeat or rephrase the statement. If so, it does not follow.

Now let us apply these rules to the 5 examples solved above.

Ex.1 I. Rule 2 applies as it negates the statement.
II. Rule 1 applies as it is out of context.
Ex.2 I. Rule 2 applies as it negates the statement.
II. Fulfils all the conditions in Rule 1-4.
Ex.3 I. Rule 1, 2 & 4 follow but 3 does not as there can be various reasons to withdraw subsidy.
II. Rule 1, 2 & 4 follow but 3 does not as the price increase is actually 49%
Ex.4 I. Rule I applies as it is out of context.
II. Follows all the 4 rules perfectly.
Ex.5 Both I & II follow all the 4 rules and hence follow the statement.

EXERCISE

Directions (Q. 1-40): In each questions below is given a statement followed by two conclusions numbered I and II. You have to assume everything in the statement to be true, then consider the two conclusions together and decide which of them logically follows beyond a reasonable doubt from the information given in the statement. Give answer

(a) if only conclusion I follows.
(b) if only conclusion II follows.
(c) if either I or II follows.
(d) if neither I nor Il follows; and
(e) if both I and II follow.

1. **Statement:** Many people and media alleged that Mr. X, the opposition leader, met the Chief Minister yesterday to seek certain favours, an allegation which was strongly rejected by Mr X.
   Conclusions:
   I. Mr X did meet the Chief Minister yesterday to seek certain favours.
   II. Mr X did not meet the Chief Minister to seek certain favours.
2. **Statement:** For over three decades company 'X' has been totally involved in energy conservation, its efficient use and management.
   Conclusions:
   I. The company has yet to learn and acquire basic things in this area.
   II. It is dedication that is more important than knowledge and expertise.
3. **Statement:** This book 'Z' is the only book which focuses its attention on the problem of poverty in India between 1950 and 1980.
   Conclusions:
   I. There was no questions of poverty before 1950.
   II. No other books deals with poverty in India during 1950 to 1980.
4. **Statement:** Applications of applicants who do not fulfil eligibility criteria and/or who do not submit applications before last date will be summarily rejected and will not be called for the written test.
   Conclusions:
   I. Those who are called for the written test are those who fulfil eligibility criteria and have submitted their applications before last date.
   II. Written test will be held only after scrutiny of applications.
5. **Statement:** On metro section of railways, the motormen are frequently required to do overtime during May and June though all vacancies are completely filled as per requirement of this section.
   Conclusions:
   I. Many motormen take leave of shorter or longer duration during this period.
   II. Some motormen desire to earn overtime whenever possible.
6. **Statement:** The President of *XYZ* party indicated that 25 independent Members of Legislative Assembly (MLA) are seriously considering various options of joining some political party. But in any case all of them collectively will join one party only.
   Conclusions:
   I. The 25 independent MLAs will join *XYZ* party in a short period of time.
   II. The 25 independent MLAs will join some other political party in a short period of time.
7. **Statement:** 'Our approach of fund management is based on science as much as on common sense and discipline because our goal is consistent performance in the long term. – Advertisement of a mutual fund company.
   Conclusions:
   I. Only the approach of science of investment can lead to high gains in short-term investment.
   II. It is not necessary to go for long-term investment when low-return short-term investment is available.
8. **Statement:** 'We follow some of the best and effective teaching learning practices used by leading institutes all over the world.' — A statement of a Professor of MN Institute.
   Conclusions:
   I. The MN Institute is one of the leading institutes of the world.
   II. Whatever is being followed by world's leading insti tutes will definitely be good and useful.
9. **Statement:** The Bank of England's move to auction 25 metric tons of gold drew plenty of bidders looking for a bargain, but was criticised by major gold producers worldwide.
   Conclusions:
   I. The Bank of England should not auction gold which it possesses to keep steady international prices of gold.
   II. Bidders should quote higher gold prices to retain present value of gold in the international markets.
10. **Statement:** The oceans are a storehouse of practically every mineral including uranium. But like most other minerals, it is found in extremely low concentration—about three gms. Per 1000 tonnes of water.
    Conclusions:
    I. The oceans are a cheap source of uranium.
    II. The oceans harbour radiation hazards.
11. **Statement:** The minister questioned the utility of the space research programme and suggested its replacement by other areas of felt national needs.
    Conclusions:
    I. Exploring the space does not contribute to critical national needs.
    II. Research should be oriented to national needs.
12. **Statement:** The laws and statutes framed by the Government for the purpose of providing equal treatment to every citizens, on implementation perpetuate corrupt working system.

Conclusions:
- **I.** the laws and statutes should be framed but they should not be implemented to avoid corrupt working system.
- **II.** There should be obvious method to investigate corrupt working system.

13. **Statement:** Mrs X is nominated for one of the two posts of which one post is reserved by the Managing Committee for the female of other religious minority community and the other for the female of scheduled Castes or Scheduled Tribes.
Conclusions:
- **I.** Mrs X is the member of religious minority community.
- **II.** Mrs X is the member of Scheduled Castes or Scheduled Tribes.

14. **Statement:** We do not need today in India extraordinary specialists but those trained ordinary doctors who are dedicated to their profession.
Conclusions:
- **I.** We should promote medical profession with dedicated ordinary doctors rather than promoting high specialised medical education.
- **II.** Extraordinary specialists are not dedicated to their profession.

15. **Statement:** The maximum number of vacancies for the clerical cadre is 40, which will be filled through this recruitment round – An advertisment of Company W.
Conclusions:
- **I.** The Company 'A' may appoint less than 40 clerks in this round.
- **II.** The Company 'A' may appoint 40 clerks in this round.

16. **Statement:** Global ecological issues have eclipsed local environmental problems which are being faced by the poor societies.
Conclusions:
- **I.** Poor societies always have to suffer because of their poverty.
- **II.** Global ecological issues are not so impor tant. Rich societies can bear with it.

17. **Statement:** People in metropolitan city 'X' have welcomed the recent Supreme Court order banning the registration of private vehicles that do not conform to Euro II emission norms with immediate effect for metropolitan city 'Y' only.
Conclusions:
- **I.** City 'X' has quite lower level of vehicular pollution than city 'Y'.
- **II.** Public vehicles do not contribute to the vehicular pollution.

18. **Statement:** '70% of the world's data is processed on XYZ company's platforms' – An advertisement of XYZ – a computer manufacturing company.
Conclusions:
- **I.** There is no other company in the world which produces platforms of data processing.
- **II.** Company XYZ has to make more efforts to market its platforms.

19. **Statement:** The government of State 'A' has sought a waiver of outstanding Central loans of ₹ 4,000 crores and a moratorium on repayment pending the waiver.
Conclusions:
- **I.** Unlike other states, State 'A' has no desire to make repayment of its loans.
- **II.** State 'A"s financial condition does not appear to be satisfactory.

20. **Statement :** The cabinet of State 'X' took certain steps to tackle the milk glut in the state as the cooperatives and Government dairies failed to use the available milk. - A news report
Conclusions :
- **I.** The milk production of State 'X' is more than its need.
- **II.** The Government and co-operative dairies in State 'X' are not equipped in terms of resources and technology to handle such excess milk.

21. **Statement :** My first and foremost task is to beautify this city. If city 'X' and 'Y' can do it why can't we do it? Statement of Municipal Commissioner of city 'Z' after taking over charge.
Conclusions :
- **I.** The people of city 'Z' are not aware about the present state of ugliness of their city.
- **II.** The present Commissioner has worked in city 'X' and 'Y' and has good experience of beautifying cities.

22. **Statement:** Women's organisations in India have welcomed the amendment of the Industrial Employment Rules 1946 to curb sexual harassment at the workplace.
Conclusions:
- **I.** Sexual harassment of women at workplace more revalent in India as compared to other developed countries.
- **II.** Many organisations in India will stop recruiting women to avoid such problems.

23. **Statement :** It has been decided by the Government to withdraw 33% of the subsidy on cooking gas from the beginning of next month. A spokesman of the Government.
Conclusion :
- **I.** People now no more desire or need such subsidy from government as they can afford increased price of the cooking gas.
- **II.** The price of the cooking gas will increase at least by 33% from the next month.

24. **Statement:** "The Government will review the present policy of the diesel price in view of furtherspurt in the international oil prices".-A spokesman of the Government.
Conclusions:
- **I.** The Government will increase the price of the diesel after the imminent spurt in the international oil prices.
- **II.** The Government will not increase the price of the diesel even after the imminent spurt in the international oil prices.

25. **Statement :** The eligibility for admission to the course is minimum second class master's degree. However, the candidates who have appeared for the final year examination of master's degree can also apply.
Conclusions:
- **I.** All candidates who have yet to get their master's degree will be there in the list of selected candidates.
- **II.** All candidates having obtained second class master's degree will be there in the list of selected candidates.

26. **Statement:** The government-run company had asked its employees to declare their income and assets but it has been strongly resisted by employees union and no employee is going to declare his income.
Conclusions:
I. The employees of this company do not seem to have any additional undisclosed income besides their salary.
II. The employees' union wants all senior officers to declare their income first.

27. **Statement:** The 'Official Secrets Act' (OSA) enacted by the XYZ government during the war seems to be the source of much corruption in the country 'P'.
Conclusions:
I. The Official Secrets Act has to be abolished immediately to stop corruption in country 'P'.
II. The XYZ government wanted to encourage corruption in the government offices.

28. **Statement :** After collision of two vessels in the sea all the crewmen and passengers are declared as missing. A news report
Conclusions:
I. No one from the two vessels has survived after the collision.
II. A few persons from the two vessels may have survived and are missing.

29. **Statement:** Good health is a luxury in country 'P' where rate of death is very high compared to other nations of that region.
Conclusions:
I. People in country 'P' cannot afford to have many luxuries of life.
II. Good health is a gift of nature.

30. **Statement:** Although we have rating agencies like Crisil, ICRA, there is demand to have a separate rating agency of IT companies to protect investors.
Conclusions :
I. Assessment of financial worth of IT Companies calls for separate, set of skills, insight and competencies.
II. Now the investors investing in IT companies will get protection of their investment.

31. **Statement:** Company "Y" will improve the manufacturing facilities for the production of shaving kits as a result of which capacity would increase and cost would be reduced. A spokesperson of the Company "Y"
Conclusions :
I. The products of Company "Y" will compete the market norms in the quality and cost factor.
II. There will be demand of shaving kits of Company "Y".

32. **Statement:** During 1997-98 the total loss incurred by the 111 Public Sector Units was to the tune of ₹ 6809 crore which was converted into paid capitals by the Government of its total investment of ₹ 5129 crore.
Conclusions :
I. The Government is left with only one option, that is, to privatise these units.
II. The Government did not take care in the matter of investments in these public sector units.

33. **Statement:** Population increase coupled with depleting resources is going to be the scenario of many developing countries in days to come.
Conclusions :
I. The population of developing countries with not continue to increase in future.
II. It will be very difficult for the governments of developing countries to provide its people decent quality of life.

34. **Statement:** Mr. X is one of the probable candidates shortlisted for the post of Director of KLM Institute.
Conclusions :
I. Mr. X will be selected as Director of KLM Institute.
II. Mr. X will not be selected as Director of KLM Institute.

35. **Statement:** An advertisement / Interest rate will be fixed on the basis of our bank's rate prevailing on the date of deposit and refixed every quarter thereafter.
Conclusions:
I. It is left to the depositors to guard their interest.
II. The bank's interest rates are subject to change on a day-to-day basis depending on market position.

36. **Statement:** In order to enforce discipline on transport operators, the state government has decided to impose a fine of ₹ 5,000 for the first excess tonne loaded in transport vehicle and ₹ 1,000 for each subsequent tonne.
Conclusions :
I. People will follow some discipline when severe fine is imposed.
II. The state government has failed to understand the problem of transport operators.

37. **Statement:** Research has proved that people eating high fat diets coupled with decreased level of exercises are prone to heart diseases.
Conclusions:
I. People should reduce their high-fat diet as a preventive method.
II. People must have sufficient level of exercise to reduce their chances of having heart disease.

38. **Statement:** Only those candidates with exceptional talent and strong motivation should apply. An advertisement.
Conclusions:
I. Candidates not fulfilling these criteria will not be considered.
II. It is possible to decide clearly who is talented and motivated.

39. **Statement:** Book your flat before 15th June and avail *interest free* loan from the builders. An advertisement
Conclusions:
I. No flat will be booked afterwards.
II. After 15th June, no loan will be provided.

40. **Statement:** Society is organised to provide the opportunity for personality development and society at its best promotes the personality of its members.
Conclusions:
I. Individuals brought up in total isolation from any human contact cannot get an opportunity for development of their personality.
II. Development of personality has no implication for any society.

CHAPTER 18

Courses of Action

INTRODUCTION

In many objective, competitive examinations questions related to courses of action are frequently asked. Particularly for getting job in banking sector, one must have a command over such type of problems, such problems have become a regular feature of the question papers of various exams to be conducted for recruiting bank employees.

Why such questions are asked?

The basic reason behind asking such questions is to test your ability to judge a problem correctly in order to determine the root of the given problem and then finding out a proper course of action for that particular problem.

What is the format of the problem?

Directions: In the question given below is given a statement followed by two suggested courses of action number I and II. A course of action is a step or administrative decision to be taken for improvement, follow up, or further action in regard to the problem, policy etc. On the basis of the information given in the statement. Read the situation carefully and then decide which of the given courses of action follow/ follows.

Mark answers:

(a) If only I follows (b) If only II follows
(c) If either I or II follows (d) If neither I nor II follows
(e) If both I & II follow.

Statement: The sale of a particular product 'A' has gone down considerably, causing great concern to company 'X'.

Courses of action :

I. Company 'X' should mark a proper study of the rival products in the market.

II. The price of product 'A' should be reduced.

NOTE : *In the examinations more than two courses of actions may also be given.*

As we have started the chapter right now, we will not solve the questions given in the format in the very begining. But the questions given in the format will be solved after all the discussion get completed. In other words, the problems in the given format will be solved when we will reach at the conclusion of this chapter.

Types of Problems.

(1) Problems based on problem and solution relationship.
(2) Problems based on fact & improvement relationship.

Now, this is the time to discuss both the types of problems one by one:

1. PROBLEMS BASED ON PROBLEM AND SOLUTION RELATIONSHIP

This is a case when the given statement talks of a problem and the suggested course of action talk of a solution. It is very easy to find out when a suggested course of action is acceptable and when it is not. In fact, the suggested course of action will be acceptable if:

(a) It solves/ reduces or minimises the given problem
(b) It gives a practical and solution.

Now, what to do ? Just see the given problem with a serious eye; think over that; apply your day to day experiences; apply your common sense and use your general knowledge to judge wheather a suggested course of action solves/ reduces or minimises the problem given in the statement. After this step, the next step is checking the practicality. Here, you have to check if the solution suggested by given course of action is wise enough and applicable in practical way in day to day life.

In a fact. (a) is the 1st step test and after passing the step I test, the given course of action will have to pass step II (which is (b)). It the given course of action passes both the tests [step I (a) and step II (b),] only then it will be called a correct action.

Step I test

To pass the step I test a suggested course of action must be

(i) based on established fact or
(ii) based on logical pridiction or
(iii) based on experiences
(iv) based on prevailing notions of truth

Let us discuss all the conditions mentioned above:-

(i) Action based on established fact: -

In some of the cases an action taken is an established fact which suggests that the given problem can be reduced or solved by this particular solution. It does mean that the solution suggested by the given course of action is universally acknowledged to the given problem. Let us see the examples given below:

EXAMPLE 1.

Statement: Southern part of India has been coming rapidly into the grip of malaria.

Courses of action:

I. The Southern Indian population must be instructed not to come out of their houses [wrong action]

II. Anti- mosquito liquids should be sprayed in the southern part of India [correct action]

EXAMPLE 2.

Statement: A child was caught while stealing money of a respectable person of society.

Courses of action:

I. The child should be sent to child welfare society. (correct action)

II. The child should be put in jail and severly beaten (wrong action)

Comment: In example I, I is rejected as it is an irrelevant action. It does not make it clear how instructing population for not coming out of their houses will solve or reduce the problem of spreading malaria. But II is a proper course of action as it is an established biological fact that malaria can be prevented by using safeguards against mosquitoes. This is the reason that II will go for further test (step II test) proving itself a proper course of action in 1st level test (step I test).

In example 2, II is rejected on the basis that it is totally illogical to beat a child and put into jail as a child is not mature enough to decide what is right and what is wrong further, this is an established fact (socially established fact) that child criminals must not be treated as punishable wrong deer but they should be made to mend their ways and on the basis of this I is the correct course of action. Hence, I will qualify for the 2nd round test (Step II test)

Now we can say, that following will go for step II (practicality) test :

(ii) Action based on logical prediction :

In such type of cases solutions provided for the given problems are neither an established fact nor they can be considered as proper action on the basis of our past experiences. Hence, in such cases examinees are required to apply certain logic and reasoning to find out if the given course of action solves/reduces or minimises the problem. Let us see the example given below:

EXAMPLE 3.

Statement: Jammu & Kashmir is experiencing again the rise of terrorism and it is obvious that Pakistan is encouraging it.

Course of action: India must go to the international bodies with all the proof of Pakistani involvement in Jammu & Kashmir and demand that Pakistan must be declared a terrorist nation. [correct action]

Comment : Here, the given course of action is the correct one at step I test. In fact, it is a matter of simple logic of diplomacy that in case of disturbances created by a hostile nation within our country, we put this issue before international bodies so that the hostile nation stands at disadvantage. Thus Ex. 3 will qualify for the next step test (step II or practicality test).

(iii) Action based on experiences: In certain cases, while deciding if a given course of action solves or reduces or minimises the given problem, our experiences work. In fact, in such cases the given problem may be a relatively new one. It will not be totally new but it will not be very old either. This is the reason that the solution can not be said as an established fact. However, based on our past experiences, in the similar kind of situation, we can reach the conclusion that the given problem can be solved/ reduced/ minimised by this particular action. Let us see the example given below:

EXAMPLE 4.

Statement: Several foreign powers having expansionist thinking are threat to India.

Course of action: Efforts should be made that the Indians remain united for any eventuality. [correct action]

Comment: Our past experiences say that we (India) became a sufferer several times became of the foreign powers and at that time we lacked our unity. In another words, India has fallen victim to foreign powers only when our country (India) has not remained united. Hence, on the basis of our past experience, we can conclude that the given course of action solves or reduces the problem making its entry for 2nd level (step II) test.

(iv) Action based on prevailing notions of truth: In such type of cases solutions provided for the given problem is as per the social norms. In other words, the given course of action suggests a solution that is prevailing notion of truth. In fact, they are the ideas that are universally accepted and acknowledged by the society and hence in many ways they are similar to established fact. Let us see the following examples:

EXAMPLE 5.

Statement: Mr Sharma got angry and beat his son mercilesely.

Course of action : Mr.Sharma should be caned publicly [wrong action]

EXAMPLE 6.

Statement : Most of manufacturing companies in India are running in losses.

Course of action: Prospects of privatisation of these companies must be explored. [correct action]

Comment: In example 5, the given solution is against the societal worm as the public beating is not considered a good punishment. In other words, it is prevailing notion of truth that public beating is not good. Hence, on the basis of this the given solution is rejected and will not go for 2nd level test (step II test).

In example 6, the given course of action suggests privatisation for less making manufacturing and no doubts, it is a prevailing motion of truth that privatisation can make loss making companies strong ones and chances of their loss making can be reduced or minimised. There is also a chance that privatisation can convert a loss making company into a profitable one. Hence, we conclude the given solution is correct one and will qualify for further test (2nd level test or step II test). Now, we can move on to step II test.

Step II (Test of Practicality)

This is the 2nd part of test. In the 1st part we just found out wheather a suggested action really solves/ reduces/ minimises the given problem. But an important part also remains to be checked and that is the test of practicality. Point to be noted that a given course of action may solve/ reduce/ minimise a particular problem but if it is not practically possible, it will be consider useless. This is the reason why this point to, needs sound checking. For this you have to keep the following things in your mind:

A. The problem and solution must be well matched and must be in proportion. In other words, if solution are too simple for too severe problems, they will be useless. Conversly, we can say that too severe solutions are not good solutions for too simple problems.

B. Even after passing the step I test, the given solution is creating a new problem, then the given solution will not be a good solution and will fail in practicality test.

Examples for (A)

EXAMPLE 7.

Statement : Lack of discipline is a good reason for low productivity in India.

Course of action : Government must take step to make military traing compulsory for all Indian citizens. [wrong action]

EXAMPLE 8.

Statement: As per the report of 'WHO' (World Health Organisation) the life expactancy of an average Indian is continuously declining.

Course of action : A serious effort must be made to prevent children from making noises. [wrong action]

Comment: In Example 8, the given course of action is not a good solution for the given problem. No, doubt that military training wold be a solution for lack of discipline but is it a practical solution? Our answer will be a big 'No' (why?). In reality, at the 1st step test the given course of action may seem true as it solves the given problem but it comes to the 2nd level test, it becomes clear that it is too ever solution for relatively small problem. Hence, on this basis the given course of action is rejected finally.

In example 8, the given course of action suggests that problem of declining life expectancy can be solved if children are prevented from making noises. At one stage the given course of action reduce the problem to some extent as it suggests that less noise will increase the chance of less blood pressure and this will result in less death because of blood pressure. But when we think analytically, we come to the conclusion that the problem is very serious and the given solution is very simple for it. Hence on this basis the given course of action would be declared a wrong one and would be rejected finally.

Example for (B)

EXAMPLE 9.

Statement: In recent years, people have developed a tendency of tax evasion and this is the reason tax evasion has increased an alarming level.

Course of action : Government must make law to abolish taxes. [wrong action]

Comment: Here, the given problem is about tax evasion. Tax evasion does mean showing less income to pay less tax. Why tax evasion, is a problem? Because tax evasion generates black money. The given course of action suggests the abolition of taxes which connot be said a good solution as taxes are taken to provide people certain indirect services like the facility of roads, parks, police etc. Suppose if taxes are not changed, how and where from money will come to provide such indirect services to community. No doubts, the tax abolition will create a new problem. Hence on this basis the given course of action will be rejected finally as it fails the 2nd level test (step II test) of practicality.

Now after understanding what is a practical solution, we can test the courses of action that have been passed the step I test and given under examples 1, 2, 3, 4 and 6.

Step II test of Example. 1 (Course of action II): II course of action given under example 1. is " Anti mosquito liquids should be sprayed in the southern part of India " and we doubts this is a practical solution for the given problem. In the past we have also seen that such steps have been taken. Not in the past only even today whenever it seems that mosquito born diseases are imminent, the anti-mosquito liquids are sprayed. Such step is taken only because it is practical. Here, the II courses of action given under example 1 passes both the test to be finally declared as proper and correct solution.

Step II test of Example-2 [Course of action I]: I course of action given under example 2. is "child should be sent to child welfare society" and he doubts this is a practical solution. In so many cases we have seen that when a child does the crime like stealing and some other more serious crime, then they are put under such atmosphere that they can understand the seriousness of their crime and try to mend their ways. For such children, child welfare societies and some other such kind of organisations are very helpful. Hence, this course of action passes its final test to be declared a correct course of action.

Step II test of Example. 3 : course of action given under example 3 is "India must go to the international bodies with all the proof of Pakistani involvement in Jammu & Kashmir and demand that Pakistan must be declared as terrorist nation" and this is a very practical solution. As we have seen in certain circumstances in past India has put such type of demand from UNO an even from some other nations on individual basis. No doubts, that on such demands India has got support to some extent. Hence it is a very practical solution and this given course of action passes it practicality test to be declared a proper and correct course of action.

Step II test of Example. 4 : The given course of action "efforts should be made that the Indians remain united for any eventualities" is a practical one as we have shown this type of unity in the past. For example, in the freedom struggle we were united. How this unity took place? Only because this was practically possible. Hence, this given course of action, too, passed the practically test to be declared finally a proper and correct course of action.

Step II test of Example.6: The given course of action "Prospects of privatisation of these (loss making) companies must be explored is not a correct solution at the end at the 2nd level test (Practicality test) because the courses of action and the given statement are not properly linked. The statement does not make it clear that it talks only about public sector manufacturing concerns as even a private sector manufacturing company may be a loss making company. Hence the statement and given course of action create confusion. Therefore, the given course of action is rejected at 2nd level test.

2. PROBLEM BASED ON FACT AND IMPROVEMENT RELATIONSHIP

This is the 2nd type of problem related to course of action. But point to be noted that this does not require any new skill. The solving method is exactly the same as you have solved the 1st type of problem that is problem solution based. In fact you have to solve this type of problem in two steps:

(i) Find out wheather the suggested course of action will help an improvement of the situation

(ii) Find out wheather the two are properly balanced.

In fact problem given under example 7 is such type of problem.

Now we have come at the end of this chapter and this is the time to solve the problem given under segment what is the format of the problem? Let us solve it:

Statement : The sale of a particular product 'A' has gone down considerably, causing great concern to company 'X'.

Courses of action :

I. Company should make a proper study of rival products in the market.

II. The price of product 'A' should be reduced.

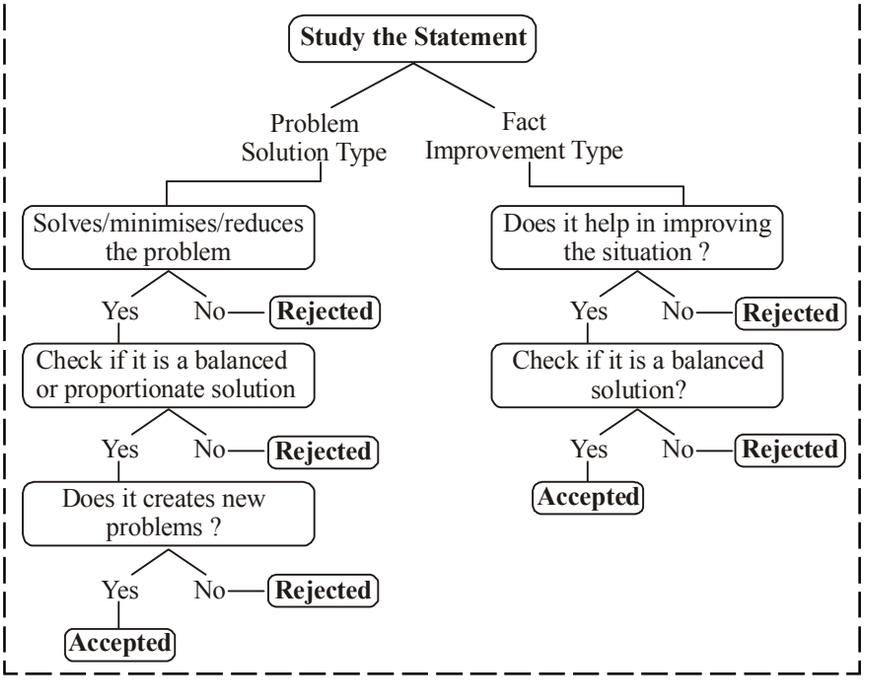
Solution. Option (a) is the correct option as only I follows.

Reason /Explanation: If the sale of 'A' has gone down, then there must be some solved reasons. The company X must know this reason. As I suggest the similar solution, it follows. But II does not follow. The company should 1st know if price was a factor behind the drop in sale. Without knowing this, reducing price may turn out to be a wrong and harmful action.

Note

If see an either choice in the answer options avoid it. It will be a wrong answer. Either choice can be in the form like "Either of I or II (or III or I etc.) follows".

❑ Shortcut Approach



EXERCISE

Directions (Qs. 1-35): In each question below is given a statement followed by two courses of action numbered I and II. A course of action is a step or administrative decision to be taken for improvement, follow-up or further action in regard to the problem, policy, etc. On the basis of the information given in the statement, you have to assume everything in the statement to be true, then decide which of the suggested courses of action logically follow(s) for pursuing. Give answer

(a) if only I follows.
(b) if only II follows.
(c) If either I or II follows.
(d) if neither I nor II follows
(e) if both I and II follow.

1. **Statements:** There has been a significant drop in the water level of all the lakes supplying water to the city.
Courses of action:
I. The water supply authority should impose a partial cut in supply to tackle the situation.
II. The government should appeal to all the residents through mass media for minimal use of water.

2. **Statement:** A very large number of students have failed in the final high school examination due to faulty questions in one of the subjects.
Courses of action:
I. All the students who have failed in that subject should be allowed to take supplementary examination.
II. All those who are responsible for the error should be suspended and an enquiry should be initiated to find out the facts.

3. **Statement:** The prices of foodgrains and vegetables have substantially increased due to a prolonged strike call given by the truck owners' association.
Courses of action:
I. The government should immediately make alternative arrangement to ensure adequate supply of foodgrains and vegetables in the market.
II. The government should take steps to cancel the licenses of all the vehicles belonging to the association.

4. **Statement:** A large number of people visiting India from country '*X*' have been tested positive for carrying viruses of a killer disease.
Courses of action:
I. The government of India should immediately put a complete ban on people coming to India from country '*X*' including those Indians who are settled in country '*X*'.
II. The government of India should immediately set up detection centres at all its airports and seaports to identify and quarantine those who are tested positive.

5. **Statement:** There has been an unprecedented increase in the number of requests for berths in most of the long distance trains during the current holiday seasons.
Courses of action:
I. The railways authority should immediately increase the capacity in each of these trains by attaching additional coaches.
II. The people seeking accommodation should be advised to make their travel plan after the holiday.

6. **Statement:** The cinema halls are incurring heavy loss these days as people prefer to watch movies in home on TV than to visit cinema halls.
Courses of action:
I. The cinema halls should be demolished and residential multistorey buildings should be constructed there.
II. The cinema halls should be converted into shopping malls.

7. **Statement:** It is necessary to adopt suitable measures to prevent repetition of bad debts by learning from the past experiences of mounting non-performing assets of banks.
Courses of action:
I. Before granting loan to customers their eligibility for loan should be evaluated strictly.
II. To ensure the payment of instalments of loan, the work, for which loan was granted, should be supervised minutely on a regular basis.

8. **Statement:** Many private sector banks have reduced interest rate on housing loans in comparison to public sector banks.
Courses of action:
I. The case should be raised before the regulatory authority for investigation by the public sector banks as they cannot follow such reduction.
II. Public sector banks must adopt such policy to remain in competition.

9. **Statement:** In order to maintain its dignity every nation should prosper economically and ensure development.
Courses of action:
I. The banks and financial institutions must make people aware of the importance of economic growth and development in every country.
II. People should be encouraged to lead life with dignity.

10. **Statement:** Many private sector banks have reduced interest rate on housing loans in comparison to public sector banks.
Courses of action:
I. Public sector banks should explore new avenues in financial sector and try to establish their monopoly in these avenues and they should provide maximum possible and unique benefit to the customers.
II. The public sector banks should advertise their special feature repeatedly so that they do not lose their future customers.

11. **Statement:** The Kharif crops have been affected by the insects for three consecutive years in the district and the farmers harvested less than fifty per cent of produce during these years.
Courses of action:
I. The farmers should seek measure to control the attack of insects to protect their crops next year.

II. The Government should increase the support price of Kharif crops considerably to protect the economic interests of farmers.

12. **Statement:** There was waterlogging in the major part of the city due to heavy rain during past few days and the people residing in those areas were forced to shift to other areas.
Courses of action:
I. The Government should arrange food and shelter for the displaced people.
II. The fire brigade should be put on high alert to cope with the situation.

13. **Statement:** It has been reported that a large number of old-age people live near the airport and they are suffering from hearing problem.
Courses of action:
I. The people who are living near the airport should be transferred to other areas immediately.
II. The airport authority should train the old-age people living near the airport to cope with noise pollution.

14. **Statement:** Many students who passed SSC could not get admission in the junior colleges due to less number of seats in the colleges.
Courses of action:
I. The Government should arrange additional seats in the colleges for the students immediately.
II. The students who did not get admission in the junior colleges, should be advised to get admission in the professional courses.

15. **Statement:** The availability of imported fruits has increased in the indigenous market and so the demand for indigenous fruits has decreased.
Courses of action:
I. To help the indigenous producers of fruits the Government should impose high import duty on imported fruits, even if these are of good quality.
II. The fruit vendors should stop selling imported fruits so that the demand for indigenous fruits would increase.

16. **Statement:** The ongoing transporters' strike has entered its tenth day and the supply of essential commodities to the consumers is dwindling fast. Moreover, there is no sign of softening of the rigid stand taken by the transporters.
Courses of action:
I. The government should immediately make alternative arrangements to supply the essential commodities to the consumers.
II. The government should immediately declare the strike illegal and put all those responsible for the strike behind bars.

17. **Statement :** Due to substantial reduction in fares by different airline services, a large number of passengers, so far travelling by upper classes in trains, have switched over to airline services.
Courses of action :
I. The railways should immediately reduce the fare structure of the upper classes substantially to retain its passengers.
II. The railways should reduce the capacity of upper classes in all the trains to avoid loss.

18. **Statement :** The government has decided to withdraw all the financial assistance it has been providing to the Institutes of higher learning and urged them to become self-sufficient.
Courses of action :
I. These institutes should increase the number of seats substantially so as to enable them to meet the shortfall.
II. These institutes should rationalise the fee structure and also offer consultancy services to meet the shortfall.

19. **Statement :** Most of those who study in premier engineering colleges in India migrate to developed nations for better prospects in their professional pursuits.
Courses of action:
I. All the students joining these colleges should be asked to sign a bond at the time of admission to the effect that they will remain in India at least for ten years after they complete education.
II. All those students who desire to settle in the developed nations should be asked to pay the entire cost of their education which the government subsidises.

20. **Statement :** A large number of people are expected to gather at the holy site at the end of this month and this may put strain on civic amenities.
Courses of action :
I. The civic authority should monitor the crowd and restrict entry of the devotees beyond a manageable number.
II. The local police authority should be put on high alert to maintain law and order during the congregation.

21. **Statement:** The meteorological department has issued a notification forecasting less rainfall during next year's monsoon.
Courses of action:
I. The farmers should be advised to be ready for the eventuality.
II. The government should make arrangement to provide water to the affected areas.

22. **Statement:** There is an unprecedented increase in migration of villagers to urban areas as repeated crop failure has put them into precarious financial situation.
Courses of action:
I. The villagers should be provided with alternate source of income in their villages which will make them stay put.
II. The migrated villagers should be provided with jobs in the urban areas to help them survive.

23. **Statement:** Due to inadequate rainfall this monsoon there is a sharp decline in foodgrain production.
Courses of action:
I. The government should increase the procurement price of foodgrains to support farmers.
II. The government should subsidise further the prices of seeds and fertilizers for the next season.

24. **Statement:** Majority of the students in many schools do not pass in the final examination.
Courses of action:
I. These schools should be closed down as these have become unproductive.
II. The teachers of these schools should immediately be retrenched.

25. **Statement :** The alert villagers collectively caught a group of dreaded dacoits armed with murderous weapons.
Courses of action:
I. The villagers should be provided sophisticated weapons.
II. The villagers should be rewarded for their courage and unity.

26. **Statement:**
According to the public health department of State '*X*', the supply of contaminated water by the municipality is the main reason of the spread of the disease '*A*' in the state.
Courses of action:
I. State government should replace the head of the water supply department immediately.
II. State government should provide free water filter to its residents.

27. **Statement:**
The proposed strike by the transporters would paralyse day-to-day life of the people.
Courses of action:
I. City administrators should engage the transporters successfully in negotiations on their demands in order to pre-empt their strike.
II. City administrators should arrange for alternative public transportation system during the strike.

28. **Statement:**
The government of state '*Y*' has decided to remove hutments and buildings that have come up beside roads to broaden them in city '*A*'.
Courses of action:
I. The government of state '*Y*' should rehabilitate the affected residents of hutments/buildings.
II. The government should compensate with reasonable amounts for the targeted houses.

29. **Statement:**
Since the new building is ready, the chairman of Bank *XYZ* has directed its administrative section to plan for shifting its headquarters to the new building.
Courses of action:
I. Administrative department should deliver infrastructural facilities for the new building immediately.
II. Administrative department should invite quotations from Movers and Packers.

30. **Statement:** *ABC* Ltd company has decided to launch free education up to class X for the children of its employees from June 2000.
Courses of action:
I. The company should reduce its other expenditures to save money for the plan.
II. The company will have to prepare details for the execution of the plan.

31. **Statement:** The 'X' state government has chalked out a plan for the underdeveloped 'Y' district where 80% of the funds will be placed in the hands of a committee of local representatives.
Courses of action:
I. The 'X' state government should decide guidelines and norms for the functioning of the committee.
II. Other state governments may follow similar plan if directed by the Central government.

32. **Statement:** The district administration has agreed to provide necessary infrastructural facilities to the proposed NRI-funded Trust's project of supply of clean water to city 'Z'
Courses of action:
I. The district administration should provide necessary - land to the trust by completing due formalities.
II. The district administration should facilitate obtaining electricity and other permissions to the trust.

33. **Statement:** The car dealer found that there was a tremendous response for the new XYZ's car-booking with long queues of people complaining about the duration of business hours and arrangements.
Courses of action:
I. People should make their arrangement of lunch and snacks while going for car XYZ's booking and be ready to spend several hours.
II. Arrangement should be made for more booking desks and increase business hours to serve more people in less time.

34. **Statement:** The vegetable traders feel that the prices of onion will again go up shortly in the state P.
Courses of action:
I. The 'P' state government should purchase and store sufficient quantity of onion in advance to control price.
II. The 'P' state government should make available network of fair price shops for the sale of onions during period of shortage.

35. **Statement:** The 'M', state government has decided henceforth to award the road construction contracts through open tenders only.
Courses of action:
I. The 'M' state will not be able to get the work done swiftly as it will have to go through tender and other procedures.
II. Hence, forth the quality of roads constructed may be far better.

Directions (Qs. 36-40): In each question given below a statements followed by three courses of action numbered I, II and III. A course of action is a step or administrative decision to be taken for improvement, follow-up or further action in regard to the problem, policy, etc. On the basis of the information given in the statement, you have to assume everything in the statement to be true, then decide which of the three given/ suggested courses of action logically follows for pursuing and decide the answer.

36. **Statement:** The chairman of the car company announced in the meeting that all trial of its first product the new car model 'M' are over and company plans to launch its car in the marked after six months.

Courses of action :

I. The network of dealers is to be finalised and all legal, financial and other matters in this connection will have to be finalised shortly.

II. The company will have to make plan for product other than car.

III. Material, managerial and other resources will have to be in fine tune to maintain production schedule.

(a) I and III only (b) Only I
(c) All the three (d) Only II
(e) None of these

37. **Statement:** The Company 'X' has rejected first lot of valves supplied by Company 'A' and has cancelled its entire huge order quoting use of inferior-quality material and poor craftsmanship.

Courses of action :

I. The Company 'A' needs to investigate functioning of its purchase, production and quality control departments.

II. The Company 'A' should inspect all the valves rejected by Company 'X'.

III. The Company 'A' should inform Company 'X' that steps have been taken for improvement and renegotiate schedule of supply.

(a) Only I and II (b) Only II
(c) All I, II and III (d) II and either I or III
(e) None of these

38. **Statement:** Residents from Model Colony coming under North Ward of City 'X' have complained to the Ward Officer that for last three days the tap water in the ward is contaminated and no action is being initiated by the municipal staff.

Courses of action :

I. The Ward Officer of North Ward should initiate action against residents who have lodged complaints against municipal staff.

II. The Ward Officer should ask his junior officer to visit Model Colony to asses the actual condition of water with his staff and to get samples of water tested from laboratories.

III. The Ward Officer should ask Ward Engineer to check water installation and pipelines in the Model Colony area.

(a) Only I and II (b) Only II and III
(c) Only either I or III & II (d) Only I and III
(e) None of these

39. **Statement:** The Deputy Mayor of city 'Z' has proposed to install a plant of mineral water and to supply citizens, mineral water bottles at ₹ 6 per litre as against ₹ 10 per litre being sold by local private companies.

Courses of action:

I. The local private companies of city 'Z' will have to close their operation.

II. The corporation of city Z will have to provide for losses in this project in its budget.

III. The tap water scheme of city Z will have to be stopped.

(a) None of these (b) Only I and III
(c) Only I and II (d) Only II & III
(e) All the three

40. **Statement:** The Management of School 'M' has decided to give free breakfast from next academic year to all the students in its primary section through its canteen even though they will not get any government grant.

Courses of action :

I. The school will have to admit many poor students who will seek admission for the next academic year.

II. The canteen facilities and utensils will have to be checked and new purchases to be made to equip it properly.

III. Funds will have to be raised to support the scheme for years to come.

(a) Only either I or II (b) Only II and III
(c) Only I (d) None of these
(e) All the three

CHAPTER 19

Cause & Effect

INTRODUCTION

This chapter is unavoidable for any exams as the questions based on causes and effect are frequently asked in such examinations. Therefore, PO aspirants must pay special attention towards such questions. Before discussing the chapter, you must get the idea of the format of the problems to be asked in the examination. Let us see.

PROBLEM FORMAT/SAMPLE PROBLEM

Directions (Qs. 1-5) : Given below are pairs of events 'A' and 'B'. You have to read both the events 'A' and 'B' and decide their nature of relationship. You have to assume that information given in 'A' and 'B' is true and you will not assume anything beyond the given information in deciding the answer.

Mark answer:

(a) If 'A' is the effect and 'B' is its immediate and principal cause.
(b) If 'A' is the immediate and principal cause and 'B' is its effect.
(c If 'A' is an effect but 'B' is not its immediate and principal cause.
(d) If 'B' is an effect but 'A' is not its immediate and principal cause.
(e) None of these

Examples

1. **Event A:** Bihar has a lot of corruption.
   Event B: Bihar is one of the poorest state of our country.
2. **Event A:** Company 'X' has recorded a 25% jump in its sales.
   Event B: Company 'X' has reduced the prices of its products considerably.
3. **Event A:** Priyanka is suffering from scurvy.
   Event B: Priyanka has had inadequate intake of vitamin C.
4. **Event A:** Ramkishan died while going to hospital.
   Event B: A car dashed into the bike Madan was driving.
5. **Event A:** Vandana succeeded.
   Event B: Vandana worked hard.

After seeing the sample problem, now we are ready to discuss the main terms of the chapter in detail.

CAUSES AND EFFECT

It is very important to understand that events do not just happen; they takes place because there was a cause behind them. In fact, such causes are the conditions under which these events (or effects/results) take place. Further, point to be noted that something can be said to be a cause of another event only if it is a necessary as well as sufficient condition for that effect to take place. Now, the two questions aries:-

(a) What does mean a necessary condition?
(b) What does mean a sufficient condition?

Let us see:-

Necessary Condition

A circumstance in whose absence the event can not occur is called a necessary condition. For example, no fire can take place without oxygen. But point to be noted that no doubt that presence of oxygen is a necessary condition for fire to occur, but it is not a sufficient condition for this event (fire to occur). Then what sufficient condition is? Let us see below.

Sufficient Condition

A circumstance in whose presence the event must occur. As we have come to know that presence of oxygen is only the necessary condition for fire to occur. Its reason is simple as it is not so that wherever there is oxygen, there follows a fire. In fact, fire takes place only if:

i. the substance is combustible.
ii. the substance reaches a minimum temperature.
iii. there is oxygen present.

Hence, (i), (ii) and (iii) together make sufficient condition for fire to occur. Point to be noted that (i), (ii) and (iii) each is a necessary condition for fire to take place but when they are combined together, they become sufficient condition for fire to occur. Thus, you can conclude that there may be several necessary conditions behind the occurrence of an event and they together are called sufficient condition.

From the above discussion we can also define a cause as

> Cause is an event that leads to a said effect or result and this fact is either scientifically proven or logically expected.

Important

(1) In the examinations, candidates are asked to find out if a cause is immediate as well as principal. It does mean that the said cause must be the principal reason of the given effect and it should also be fairly proximate in time to the said effect.
(2) Cause is always antecedent. In another words, cause always occur before effect.

After having a complete discussion about causes and effects, we can solve our sample problem:-

Solution of sample problem

Sol. 1. (d)

Explanation: No doubts, corruption does lead to underdevelopment and hence poverty. But this saying is very wrong that corruption is the immediate cause of poverty. Had it been so, all non-poor states must be non-corrupt; but this is very debatable.

Sol. 2 (a):

Explanation: Reduction in prices can be said to be logically expected to result in increased sales.

Sol. 3 (a):

Explanation: No doubts, that deficiency of vitamin C is the reason of scurvy as it is a scientifically proven truth.

Sol. 4 (a):

Explanation: It is very clear that death of Ramkishan took place because of the accident of his bike with a car.

Sol. 5 (a):

Explanation: It is always considered that without doing hard work success is not possible. It does mean that we take hard work to be a sufficient cause for success.

EXERCISE

Directions (Qs. 1-5) : In each of the following question two statements numbered I and II are given. There may be cause-and-effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent cause without having any relationship. Read both the statements in each question and mark your answer accordingly. Give answer

(a) if statement II is the effect of statement I.
(b) if statement I is the effect of statement II.
(c) if both the statements I and II are effects of the same cause.
(d) if both the statements I and II are independent causes.
(e) if both the statements I and II are effects of independent causes.

1. **I.** There is an unprecedented increase in the number of young unemployed in comparison to the previous year.
   II. A large number of candidates submitted applications against an advertisement for the post of manager issued by a bank.
2. **I.** The prices of vegetables have increased considerably during this summer.
   II. There is tremendous increase in the temperature during this summer, thereby damaging crops greatly.
3. **I.** Heavy downpour with high-velocity wind is probable in the coastal areas in next twenty four hours.
   II. A soap manufacturing company increased its production by more than 100 in the last month.
4. **I.** There has been considerable reduction in the number of people affected by water-borne diseases in City A during this rainy season.
   II. The government opened four new civil hospitals in City A at the beginning of the year.
5. **I.** There is increase in water level of all the water tanks supplying drinking water to the city during the last fortnight.
   II. Most of the trains were cancelled last week due to water logging on the tracks.

Directions (Qs. 6 - 9) : Given below are pairs of events I and II. Read both the events and decide the relationship. Assume that the information given is true in deciding the answer. Mark answer as

(a) if I is an effect but II is not its immediate and principal cause.
(b) if I is the immediate and principal cause and II is its effect.
(c) if I is an effect and II is its immediate and principal cause.
(d) if II is an effect but I is not its immediate and principal cause.
(e) if both the statements I and II are effects of independent causes.

6. **Event (I):** The price of gold has gone up in the local market.
   Event (II): Indians have won several prizes in designing gold ornaments.
7. **Event (I):** Today, the prime ministers of countries P and Q have decided to take steps to improve bilateral relations.
   Event (II): Next week a committee of foreign ministers and senior officers of country P and Q will work out further steps to improve the relationship.
8. **Event (I):** Recently the prices of the personal computers (PCs) have come down.
   Event (II): Some school-children are showing keen interest in learning computers.
9. **Event (I):** This year Bank M has celebrated its silver jubilee.
   Event (II): More customers are getting attracted to the market branch of Bank M.

Directions (Qs. 10-14) : In each of these questions two statements numbered I and II are given. Mark answer as :

(a) If statement I is the cause and statement II is its effect.
(b) If both the statement I and II are independent.
(c) If statement II is the cause and statement I is its effect.
(d) If both the statement I and II are affects of independent causes.
(e) if both the statements I and II are effects of independent causes.

10. I. Most parts of both the arterial roads in the city are waterlogged and this has brought vehicular movement to a halt.
    II. There have been heavy showers in the city area during the past thirty-six hours.
11. I. The prices of all the petroleum products have increased substantially in the recent price hike announced a week ago due to increase in price of crude oil in the international market.
    II. Oil producing countries have increased the output of crude oil by ten percent for the last one month.
12. I. The private medical colleges have increased the tuition fees in the current year by 200 per cent over the last year's fees to meet the expenses.
    II. The government medical colleges have not increased their fees inspite of price escalation.
13. I. The university authority has decided to conduct all terminal examinations in March/April every year to enable them to declare results in time.
    II. There has been considerable delay in declaring results in the past due to shortage of teachers evaluating the answer papers of the examination conducted by the university.
14. I. India has surpassed the value of tea exports this year over all the earlier years due to an increase in demand for quality tea in the European market.
    II. There is an increase in demand of coffee in the domestic market during the last two years.

Directions (Q. 15-17) : In each of these questions there are given two statements numbered I and II. These statements may be either independent causes or may be effects of independent causes. One of these statements may be the effect of the other statement. Read both the statements and decide which of the following answer choices correctly depicts the relationship between these two statements. Mark answer as :

(a) If 'I' is the immediate and principal cause and 'II' its effect.
(b) If 'I' is effect and 'II' is its immediate and principal cause.
(c) If 'I' is an effect but 'II' is not its immediate and principal cause.
(d) If 'II' is an effect but 'I' is not its immediate and principal cause.
(e) if both the statements I and II are effects of independent causes.

15. I. The interview panel has recommended 5 candidates for 3 vacancies which are to be filled in immediately in Company Z.
II. The 5 candidates have been asked to contact Company Z next week to know their result and accordingly to collect appointment letters.

16. I. The financial position of the Electricity Division of State XYZ has weakened and it has made demand to the government for more subsidies.
II. While the Electricity Division of State XYZ has revised the pay and perks of its employees, several subscribers and farmers have refused to pay long pending dues.

17. I. Recently the prices of the personal computers (PCs) have come down.
II. Some school children are showing keen interest in learning computers.

CHAPTER 20

Assertion and Reason

INTRODUCTION

'Assertion' means **'stating something'** and **'Reason'** means **'fact'**.

In this type of questions, we have to deal with the combination of Assertion (A) and Reason (R).

Directions (for Examples 1 to 6) : Choose the correct alternative from the following option for the Assertion (A) and Reason (R) given below. Give answer as

(a) if both A and R are true and R is the correct explanation of A.

(b) if both A and R are true and R is not the correct explanation of A.

(c) if A is true but R is false.

(d) if A is false but R is true.

(e) Both A and R are false.

EXAMPLE 1.

Assertion (A) : Indian president is the head of the state.

Reasons (R) : Indian Parliament consists of the president, Lok Sabha and Rajya Sabha.

Sol. (b) R is not the correct explanation of A.

EXAMPLE 2.

Assertion (A) : Bangladesh imports jute from India.

Reason (R) : Bangladesh has most of the jute mills.

Sol. (d) A is false but R is true.

EXAMPLE 3.

Assertion (A) : Mercury is the farthest planet from the Sun.

Reason (R) : Mercury is the smallest planet in the entire Solar- System.

Sol. (d) Mercury is the smallest planet, but it is not the farthest planet. Hence, our answer is (d).

EXAMPLE 4.

Assertion (A) : Cotton is grown in alluvial soils.

Reason (R) : Alluvial soils are very fertile.

Sol. (d) Cotton is grown in Black soils.

EXAMPLE 5.

Assertion (A) : Simla is colder than Delhi

Reason (R) : Simla is at higher altitude as compared to Delhi.

Sol. (a) The temperature decreases with the altitude and Simla is situated in lesser Himalaya.

EXAMPLE 6.

Assertion (A) : Bronze is used for making statues.

Reason (R) : Bronze is an alloy of copper and tin.

Sol. (b) Both A and R are true. But Bronze is used for making statue because it is resistance to corrosion.

EXERCISE

Directions (Qs. 1-30) : Each of the following questions consists of two statements – one labelled as the Assertion (A) and other as Reason (R). You have to examine these two statements carefully and select the answer :

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

(e) Both A and R are false.

1. **Assertion (A)** : Forest cutting is undesirable from the point of view of soil erosion.

   Reason (R) : Cutting of forests reduces the interception of rain water.

2. **Assertion (A)** : Photosynthesis takes place in all green plants.

   Reason (R) : Chlorophyll is essential for photosynthesis.

3. **Assertion (A)** : Vaccines prevent diseases.
Reason (R) : Vaccines must be given to children.

4. **Assertion (A)** : There is rainbow in the sky only after rains.
Reasons (R) : Water drops suspended in the air break up sun rays into seven colours.

5. **Assertion (A)** : Tamil Nadu gets most of the rainfall in winter.
Reason (R) : Tamil Nadu gets rainfall from retreating Monsoons.

6. **Assertion (A)** : Diamond is used for cutting glass.
Reason (R) : Diamond has a high refractive index.

7. **Assertion (A)** : Tides indicate the regular and periodic rise and fall in sea level.
Reason (R) : Tides are caused by the gravitational pull of the moon and the sun.

8. **Assertion (A)** : Goitre is a common disease in mountainous regions.
Reason (R) : The diet of the people in mountains lacks iodine content.

9. **Assertion (A)** : India is a democratic country.
Reason (R) : India has a Constitution of its own.

10. **Assertion (A)** : Bulb filament is made of Titanium.
Reason (R) : The filament should have low melting point.

11. **Assertion (A)** : A person with blood group O positive is supposed to be a universal recipient.
Reasons (R) : Type O positive does not contain any antigens.

12. **Assertion (A)** : Safety fuses are made up of materials having a high melting point.
Reasons (R) : Safety fuses should be resistant to electric current.

13. **Assertion (A)** : Sprouting should not be done before consuming the grains.
Reasons (R) : Sprouting kills many vital vitamins.

14. **Assertion (A)** : Leakages in household gas cylinders can be detected.
Reason (R) : LPG has a strong smell.

15. **Assertion (A)** : Cut fruits and vegetables should not be kept in open for long.
Reason (R) : Their vitamin content is ruined.

16. **Assertion (A)** : Telephone wires sag more in summer.
Reason (R) : They expand due to summer heat.

17. **Assertion (A)** : Most of the ancient civilisations grew near the rivers.
Reason (R) : The main occupation of man was agriculture.

18. **Assertion (A)** : Earthworms are not good for agriculture.
Reason (R) : Earthworms break down the soil into the fine particles and make it soft.

19. **Assertion (A)** : When a body is dipped in a liquid fully or partially, there is a decrease in its weight.
Reasons (R) : The decrease in weight is due to the higher density of the displaced liquid.

20. **Assertion (A)** : When a person is standing in a lift which is either at rest or moving up or moving down with uniform speed, he does not find any apparent change in his weight.
Reasons (R) : The reaction of the floor of the lift is equal to his weight.

21. **Assertion (A)** : A saltwater fish drinks sea water where a fresh water fish never drinks water.
Reasons (R) : A saltwater fish is hypertonic to its environment while a freshwater fish is hypotonic to its environment.

22. **Assertion (A)** : The territory of India is larger than the territories of the States taken together.
Reasons (R) : India is Union of States.

23. **Assertion (A)** : Alcohol rather than mercury is used in a thermometer to measure a temperature of –60°C.
Reasons (R) : Alcohol has a lower freezing point than mercury.

24. **Assertion (A)** : Noise pollution is an unwanted accumulation of noise in the atmosphere.
Reasons (R) : It interferes with communication.

25. **Assertion (A)** : The steam engine was invented by James Watt.
Reasons (R) : There was a problem of taking out water from flooded mines.

26. **Assertion (A)** : Food materials should not be soaked in water for a long time.
Reasons (R) : Washing leads to loss of vitamin A and vitamin D from the food stuff.

27. **Assertion (A)** : Pluto is the coldest planet.
Reasons (R) : It receives slanting rays of the sun.

28. **Assertion (A)** : Akbar found Din-e-Illahi
Reasons (R) : He was motivated by self glorification.

29. **Assertion (A)** : Most of the Himalyan rivers are perennial
Reasons (R) : They are fed by melting show.

30. **Assertion (A)** : Water kept in earthen pots gets cooled in summer.
Reasons (R) : Evaporation causes cooling.

CHAPTER 21

Critical Reasoning

INTRODUCTION

Critical Reasoning (CR) is ability to reason clearly to evaluate and judge arguments. You are using this skill a lot during your everyday life while reading newspapers or watching movies. When you think that the movie is pushing the limit of the Reasonable or the news sounds less reasonable than the movie that was pushing the limit, you are using your Critical Reasoning skills to produce these conclusions. The argument you meet can be anything from a classical argument to an advertisement or a dialog. Critical Reasoning questions will ask you to manipulate the argument to weaken/strengthen it, find the conclusion, assumption, explanation, do an inference or supplement a statement, etc. Whatever it is that you have to do, you will need 2 things to succeed: know the basic structure of arguments and clearly understand the argument.

In general, most of them, arguments consist of evidence, usually 2 pieces, a conclusion - the main point of an argument, and an assumption - the bridge between the evidence and conclusion. The majority of the arguments you encounter on the test will be 3 step arguments:

Evidence 1 + Evidence 2 = Conclusion.

Example 1 : Last week Mike was detained for shoplifting at a groceries store near his house, but he has been a Christian for 10 years, therefore, the police must have been wrong accusing him in stealing.

Note : There are two pieces of evidence: *'Mike was accused of stealing'* and that *'he is a Christian'*. The conclusion is that **'the police are wrong'**. Therefore, our huge assumption here is that '*a Christian could not have stolen anything.'*

Example 2. There are a lot of mosquitoes outside today, please do not turn on the light in the room because a lot of them will fly in.

Note : Here the evidences are *'there are a lot of mosquitoes outside today'* and *'do not turn on the light'*. The conclusion is that '**Many will fly in**' and the assumption is 'mosquitoes will approach the light.'

There is no set scheme for structure in CR, but since the majority of the arguments are only a few sentences long, the conclusion usually comes in the first or the last sentence. However, some of the arguments encountered will not have a conclusion at all or will have just an implied one.

Strategy to Crack Critical Reasoning Questions

This strategy is not the easiest way to do CR (the easiest would be read-and-answer), but it lets you get the most questions right spending less time per correct answer.

1. Read the questions first; this is needed so that you would know what to look for and what to do: find an assumption, strengthen/weaken, infer something or else; do not worry about the details in the question, read for keywords, such as strengthen, deny, or explain. [Use symbols for convenience, e.g. + for strengthen or – for weaken].
2. Read the passage very attentively because in contrast to Reading Comprehension, there is very little text here and mostly everything is important; try to read only once. Reread if required.
   As you read, look for the problem in the passage (evaluate how convincing it is)
3. Paraphrase (reword) the passage. It is a very important step because when you do a paraphrase, you check whether you understood the passage and at the same time you extract the skeleton of the argument, making it easier to identify the conclusion and the assumption. Very often, the paraphrase of the passage will be pretty close to the conclusion. It is not surprising, since the conclusion is the main point and evidence just supports it.) Your paraphrase should be as close to the text and as simple as possible so that you would understand it easily and at the same time could fully trust it. Do not make it too general nor too detail oriented. When you do a paraphrase, do it in three steps: Evidence1, Evidence2, and Conclusion; put "therefore" word before you start your conclusion, this will help you to set it off.
4. Read the question again (now with more understanding of what is being asked; reading the question 2 times, it will also help you to make sure your answer exactly what is stated and that you understand the question.)
5. Answer before reading the answer choices. There are two reasons for this :
   (i) if you can think of the correct answer or at least the general direction that the answer choice needs to be, you will identify it among the wrong choices much faster, thus spend less time reading the answers, which usually take 30 seconds to cover.
   (ii) Often students are seduced by the author's wording. One reads a few words that were used in the passage and the brain identifies this choice with the passage, thus making it seem more right that it needs to be. The more problems you practice with, the more chance is you will guess the right answer even before reading it.

6. Go through the answers, first time scan them for YOUR answer choice (usually you will guess correctly in 60-70% of cases), if you did not find it, reread them more attentively.
7. Draw a grid to eliminate the wrong answers easier. Use "✓" for a sure answer, "×" for a definitely wrong answer choice, and "**?**" for an answer that may be right or questionable. This will help to concentrate only on a few answer choices and will prevent you from reading same answers several times if you get confused or keep having troubles locating the right answer.

TYPES OF CRITICAL REASONING QUESTIONS

Critical reasoning questions will ask you to:

1. Identify the inference / Must be true question
2. Identify the assumption.
3. Strengthen an argument.
4. Weaken an argument.
5. Select the best conclusion / Main Point
6. Identify the paradox
7. Evaluation/ Reasoning
8. Identify a parallel argument/Structure.

1. Identify the Inference / Must be True Question

These type of questions are extremely common. An **Inference** means the same thing as "must be true". **Conclusions** differ from **inferences** in that conclusions are the result of premises and inferences are something that must be true. The following are the typical Inference (Must be true) based Questions:

- If the statements above are true, which of the following must also be true?
- Which of the following is [implied, must be true, implicit, most reasonably drawn] in the passage above?
- Which of the following inferences is best supported by the statement made above?

How to tackle "Identify the inference / Must be true questions":

- Read the stimulus and look for the argument.
- Note that Must Be True questions may not contain an argument. They may just be a series of facts. Nevertheless, try to find the argument.
- Avoid choices which contain absolute statements - never, always, none, only etc. Although these words might appear in some correct choice, you should be very sure about them.
- Some of the options can be eliminated as they go beyond the scope of the passage. Note that an inference can be based on only some of the information provided and not the complete passage.

EXAMPLE **1. Stimulus Argument**

Increases in funding for police patrols often lower the rate of crimes of opportunity such as petty theft and vandalism by providing visual deterrence in high-crime neighborhoods. Levels of funding for police patrols in some communities are increased when federal matching grants are made available.

Question :

Which of the following can be correctly inferred from the statements above?

Options :

(a) Areas with little vandalism can never benefit from visual deterrence.
(b) Communities that do not increase their police patrols are at higher risk for crimes of opportunity late at night.
(c) Federal matching grants for police patrols lower the rate of crimes of opportunity in some communities.
(d) Only federal matching grants are necessary to reduce crime in most neighborhoods.
(e) None of these

Sol. : (c) is a summary of the information provided; it is the logical end of a chain of reasoning started in the stimulus argument. The sequence of events goes like this :

Increased funding → Increased visual deterrence → Lower crime

The last statement could be mapped as follows:

Federal grants → Increased patrol funds

(c) makes the chain complete by correctly stating that federal grants can lead to lower crime in some communities. Now the logical chain becomes:

Federal grants → Increased funding → Increased visual deterrence → Lower crime

The other answer choices may not be correctly inferred because they go beyond the scope of the argument. They may be objectively, factually correct, or they may be statements that you would tend to agree with. However, you are limited to the argument presented when choosing a correct answer.

2. Identify the Assumption

An assumption is an unstated premise that supports the author's conclusion. It's the connection between the stated premises and the conclusion. An assumption is something that the author's conclusion depends upon. Assumption questions are extremely common and have types that look like this:

- Which of the following most accurately states a hidden assumption that the author must make in order to advance the argument above?
- Which of the following is an assumption that, if true, would support the conclusion in the passage above?

How to approach "Identify the assumption Questions"

- Look for gaps between the premises and the conclusion. Ask yourself why the conclusion is true. Before you progress to the answer choices, try to get feel of what assumption is necessary to fill that gap between the premises.
- Beware of extreme language in the answer choices of assumption questions. Assumptions usually are not

extreme. "Extreme" answer choices usually contain phrases such as always, never, or totally.

EXAMPLE **2. Stimulus Argument**

Traditionally, decision making by doctors that is carefully, deductively reasoned has been considered preferable to intuitive decision making. However, a recent study found that senior surgeons used intuition significantly more than did most residents or mid-level doctors. This confirms the alternative view that intuition is actually more effective than careful, methodical reasoning.

Question :

The conclusion above is based on which of the following assumptions?

Options :

(a) Senior surgeons are more effective at decision making than are mid-level doctors.
(b) Senior surgeons have the ability to use either intuitive reasoning or deductive, methodical reasoning in making decisions.
(c) The decisions that are made by mid-level and entry-level doctors can be made as easily by using methodical reasoning as by using intuitive reasoning.
(d) Senior surgeons use intuitive reasoning in making the majority of their decisions.
(e) None of these

Sol. (a) The correct answer is (a), which provides a missing link in the author's reasoning by making a connection from the evidence: that intuition is used more by senior surgeons than other, less-experienced doctors, and the conclusion: that, therefore, intuition is more effective. None of the other choices helps bridge this gap in the chain of reasoning. Although some of the other statements may be true, they are not responsive to the question. In fact, they mostly focus on irrelevant factors such as appropriateness, ease of application, ability, etc.

3. Strengthen an Argument

Assumptions connect premises to conclusions. An argument is strengthened by strengthening the assumptions. Here are some examples of Strengthen question types :

- The conclusion would be more properly drawn if it were made clear that...
- Which of the following, if true, would most strengthen the conclusion drawn in the passage above?

How to approach "Strengthen an argument"

- Once you have identified the argument of the passage, i.e. the evidence(s) + conclusion, try putting in each option with the argument. Check if the assumption(s) you have drawn is (are) strengthened if you accept the content of the option as true.

EXAMPLE **3. Stimulus Argument**

Three years after the Bhakra Nangal Dam was built, none of the six fish species native to the area was still reproducing adequately in the river below the dam. Because the dam reduced the average temperature range of the water from approximately 40° to approximately 10°, biologists have hypothesized that sharp increases in water temperature must be involved in signaling the affected species to begin their reproduction activities.

Question :

Which of the following statements, if true, would most strengthen the scientists' hypothesis?

Options :

(a) The native fish species were still able to reproduce in nearby streams where the annual temperature range remains approximately 40°.
(b) Before the dam was built, the river annually overflowed its banks, creating temporary backwaters that were used as breeding areas for the local fish population.
(c) The lowest temperature ever recorded in the river prior to dam construction was 30°; whereas the lowest recorded river temperature after construction was completed has been 40°.
(d) Non-native fish species, introduced after the dam was completed, have begun competing with the native species for food.
(e) None of these

Sol. (a) most strengthens the conclusion that the scientists reached. It does so by showing that there is a control group. In other words, a similar population, not subjected to the same change as the population near the dam, did not experience the same type of result. Here the basic assumption about the conclusion that scientists reached is that 'because of the reduction of average temperature range of the water, the reproduction of the native fish species has reduced drastically'. Option (a) clearly strengthens the assumption.

4. Weaken an Argument

Assumptions connect premises to conclusions. An argument is weakened by weakening the assumptions. Here are some examples of Weaken question types :

- Which of the following, if true, would weaken the conclusion drawn in the passage above?
- The argument as it is presented in the passage above would be most strengthened if which of the following were true?

How to approach "Weaken an argument"

- Once you have identified the argument of the passage, i.e. the evidence(s) + conclusion, try putting in each option with the argument. Check if the assumption(s) you have drawn is (are) weakened if you accept the content of the option as true.

EXAMPLE **4. Stimulus Argument**

A drug that is very effective in treating some forms of cancer can, at present, be obtained only from the

bark of the Raynhu, a tree that is quite rare in the wild. It takes the bark of approximately 5,000 trees to make one pound of the drug. It follows, then, that continued production of the drug must inevitably lead to the raynhu's extinction.

Question :

Which of the following, if true, most seriously weakens the above conclusion?

Options :

(a) The drug made from Raynhu bark is dispensed to doctors from a central authority.
(b) The drug made from the Raynhu bark is expensive to produce.
(c) The Raynhu generally grows in largely inaccessible places.
(d) The Raynhu can be propagated from cuttings and cultivated by farmers.
(e) None of these

Sol. (d) provides an alternate source of the Raynhu bark. Even though the tree is rare in the wild, the argument is silent on the availability of cultivated trees. The author of the argument must be assuming that there are no Raynhu trees other than those in the wild, in order to make the leap from the stated evidence to the conclusion that the Raynhu is headed for extinction. The option (d) weakens the assupmtion - 'there are limited raynhu trees' - by saying that there are other ways as well for the propogation of Raynhu. The other answer choices all contain information that is irrelevant. Note that the correct choice does not make the conclusion of the argument impossible. In fact, it is possible that there may be domesticated Raynhu trees and the species could still become extinct. Answer choice (d) is correct because it makes the conclusion about extinction less likely to be true.

5. Conclusion / Main Point Question

In Main Point / Conlcusion questions, you have to identify the conclusion of an argument. You are trying to find the author's point and should approach this question in a similar way to the reading comprehension main point questions. They come in several different formats:

- The main point of the passage is that...
- Which of the following statements about... is best supported by the statements above?
- Which of the following best states the author's conclusion in the passage above?
- Which of the following conclusions can be most properly drawn from the data above?

The conclusion of arguments in Main Point questions is usually not directly stated. To find the conclusion, identify the premises and then identify the conclusion drawn from the premises. Main Point questions differ from the other Critical Reasoning questions in that the argument in the stimulus is usually valid. (In most other Critical Reasoning questions the reasoning is flawed.) Conclusion questions require you to choose the answer that is a summary of the argument.

How to approach "Main Point Questions":

- Main Point answers must be within the scope of the passage.
- Your opinions or information outside of the passage are always outside of the scope.
- Some of the options given can be out of the scope of the passage.
- Knock out answers with extreme wording. Main Point answers typically do not use *only, always, never, best* or any strong words that leave little room.

EXAMPLE **5. Stimulus Argument**

People should be held accountable for their own behaviour, and if holding people accountable for their own behaviour entails capital punishment, then so be it. However, no person should be held accountable for behaviour over which he or she had no control.

Question :

Which of the following is the most logical conclusion of the argument above?

Options :

(a) People should not be held accountable for the behaviour of other people.
(b) People have control over their own behaviour.
(c) People cannot control the behaviour of other people.
(d) People have control over behaviour that is subject to capital punishment.
(e) None of these

Sol. (b) The correct response is (b). The argument includes the following two premises:

Premise 1: People are accountable for their own behaviour.

Premise 2: People are not accountable for behaviour they cannot control.

Here's the logical conclusion based on these two premises:

Conclusion: People can control their own behaviour.

(a) would require that people never have control over the behaviour of other people. Yet the argument does not provide this premise.
(b) would require that people should not be held accountable for the behaviour of other people. Yet the argument does not provide this premise.
(d) is not inferable. The argument allows for the possibility that a person might not have control over another person's behaviour which is subject to capital punishment.
(e) None of these

6. Identify the Paradox

These questions present you with a paradox, a seeming contradiction or discrepancy in the argument, and ask you

to resolve it or explain how that contradiction could exist. In other words, there are two facts that are both true, and yet they appear to be in direct conflict with one another. Here are some examples of the ways in which these questions are worded:

- Which of the following, if true, would help to resolve the apparent paradox presented above?
- Which of the following, if true, contributes most to an explanation of the apparent discrepancy described above?

How to approach "Identify the paradox questions"

- Read the argument and find the apparent paradox, discrepancy, or contradiction.
- State the apparent paradox, discrepancy, or contradiction in your own words.
- Use process of elimination. The best answer will explain how both sides of the paradox, discrepancy, or contradiction can be true. Eliminate answers that are out of scope.

EXAMPLE 6. Stimulus Argument

Town Y is populated almost exclusively by retired people and has almost no families with small children. Yet Town Y is home to a thriving business specializing in the rental of furniture for infants and small children.

Question :

Which of the following, if true, best reconciles the seeming discrepancy described above?

Options :

(a) The business specializing in the rental of children's furniture buys its furniture from distributors outside of Town Y.

(b) The few children who do reside in Town Y all know each other and often stay over night at each other's houses.

(c) Many residents of Town Y who move frequently prefer to rent their furniture rather than buy it outright.

(d) Many residents of Town Y must provide for the needs of visiting grandchildren several weeks a year.

(e) None of these

Sol. (d) The correct answer (d), explains why a town of mostly retired residents might need to rent children's furniture. The other answer choices all contain irrelevant information. This further illustrates the fact that, on all question types, if you eliminate the irrelevant choices, the remaining choice will most likely be correct.

7. Evaluation/ Reasoning Based Questions

Reasoning questions ask you to describe how the argument was made, not necessarily what it says. These questions are closely related to assumption, weakening, and strengthening questions. The correct answer identifies a question that must be answered or information that must be gathered to determine how strong the stimulus argument is. The information will be related to an assumption that the author is making. Another type of question that you will encounter asks you to *identify a flaw* in the stimulus argument. The question tells you that there is a problem with the logic of the argument. You just have to choose the answer that describes the flaw. Here are some examples of the ways in which these questions are worded:

- How does the author make his point?
- A major flaw in the argument above is that it...
- A's response has which of the following relationships to B's argument?

How to approach Reasoning Questions

- Read the argument and find the conclusion.
- State the reasoning in your own words.
- Check whether the reasoning given in the various options fall in line with the reasoning described above.

EXAMPLE 7. Stimulus Argument

Some observers have taken the position that the recently elected judge is biased against men in divorce cases that involve child custody. But the statistics reveal that in 40% of such cases, the recently elected judge awards custody to the fathers. Most other judges award custody to fathers in only 20%–30%of their cases. This record demonstrates that the recently elected judge has not discriminated against men in cases of child custody.

Question :

The argument above is flawed in that it ignores the possibility that

Options :

(a) A large number of the recently elected judge's cases involve child custody disputes.

(b) The recently elected judge is prejudiced against men in divorce cases that do not involve child custody issues.

(c) The majority of the child custody cases that have reached the recently elected judge's court have been appealed from a lower court.

(d) The evidence shows that men should have won custody in more than 40% of the recently elected judge's cases involving divorcing fathers.

(e) None of these

Sol. (d) The correct answer (d), points out a flaw in the argument. Specifically, it points out that the author of the argument was comparing the recently elected judge to other judges, not to the evidence presented in the recently elected judge's cases. In other words, the author of the argument made an unwarranted assumption that the recently elected judge did not rule against many men in custody battles where the evidence clearly favored the men. As with strengthening and weakening questions, the correct answer in flaw questions often involves unwarranted assumptions.

EXAMPLE **8. Stimulus Argument**

Although dentures produced through a new computer-aided design process will cost more than twice as much as ordinary dentures, they should still be cost effective. Not only will fitting time and X-ray expense be reduced, but the new dentures should fit better, diminishing the need for frequent refitting visits to the dentist's office.

Question :

Which of the following must be studied in order to evaluate the argument presented above?

Options :

(a) The amount of time a patient spends in the fitting process versus the amount of money spent on X-rays

(b) The amount by which the cost of producing dentures has declined with the introduction of the new technique for producing them

(c) The degree to which the use of the new dentures is likely to reduce the need for refitting visits when compared to the use of ordinary dentures

(d) The amount by which the new dentures will drop in cost as the production procedures become standardized and applicable on a larger scale

(e) None of these

Sol. (c) The correct answer (c), highlights an assumption in the stimulus argument. It shows that the author must be assuming that the reduction in refitting with the new dentures compared to ordinary dentures is significant in order to conclude that that difference will help offset an initial outlay that is twice as much. In other words, if you answer the question posed by answer choice (c) with "not much," the argument is weakened. If you answer it with "a tremendous amount," the argument is strengthened. The other answer choices are all irrelevant because no matter what the answers are, there is no impact on the relationship between the evidence presented in the stimulus argument and its conclusion.

8. Identify a Parallel Argument/Structure.

The last type of Critical Reasoning question is the *parallel structure* question. In this type of question, you must choose the answer that has the same structure as the stimulus argument. In other words, you have to find the argument that is analogous to the given argument in that it includes the same relationship between the evidence presented and the conclusion. Here are some examples of the ways in which these questions are worded:

- Which of the following is most like the argument above in its logical structure?
- Which of the following is a parallel argument to the above given argument?

EXAMPLE **9. Stimulus Argument**

It is true that it is against international law to provide aid to certain countries that are building nuclear programs. But, if Russian companies do not provide aid, companies in other countries will.

Question :

Which of the following is most like the argument above in its logical structure?

Options :

(a) It is true that it is against United States policy to negotiate with kidnappers. But if the United States wants to prevent loss of life, it must negotiate in some cases.

(b) It is true that it is illegal to sell diamonds that originate in certain countries. But there is a long tradition in Russia of stockpiling diamonds.

(c) It is true that it is illegal for an attorney to participate in a transaction in which there is an apparent conflict of interest. But, if the facts are examined carefully, it will clearly be seen that there is no actual conflict of interest in the defendant's case.

(d) It is true that it is against the law to steal cars. But someone else certainly would have stolen that car if the defendant had not done so first.

(e) None of these

Sol. (d) The correct answer (d), has the same structure as the stimulus argument. If you just replace "aid to developing nuclear powers" with "car theft," and "Russian companies" with the "defendant," it is essentially the same argument. Sometimes the parallel structure is easier to see if you use symbols to represent the terms of the argument: It is true that X is illegal. But, if Y doesn't do it, others will. Granted, the stimulus argument is in the future tense and the credited answer is in the past tense. However, it certainly is *most* like the stimulus.

EXERCISE

Directions (Qs. 1 to 17) : Study the following paragraphs and answer the question that follows :

1. Wendy, a student, is an avid backgammon player. All students play either chess or checkers, but some checkers players do not play chess because they do not understand chess strategy. Backgammon players never play checkers, because they do not find checkers challenging. Therefore, Wendy must understand chess strategy.
Which of the following must be true for the conclusion drawn above to be logically correct?
(a) All chess players understand chess strategy.
(b) Backgammon is more challenging than checkers.
(c) Chess is more challenging than backgammon.
(d) All students who find backgammon challenging play checkers.
(e) None of these

2. Our school district should not spend its money on the new Verbal Advantage reading program. After all, our students get all the reading practice they need by studying history and science.
The argument above depends on which the following assumptions?
(a) The Verbal Advantage program would not help the students learn history and science.
(b) Other reading programs are just as effective but less expensive than the Verbal Advantage program.
(c) The Verbal Advantage program involves only reading practice.
(d) Teaching students history and science is more important than teaching them reading skills.
(e) None of these

3. Efficiency is all right in its place, in the shop, the factory, the store. The trouble with efficiency is that it wants to rule our play as well as our work; it won't be content to reign in the shop, it follows us home.
It can be inferred from the above passage that
(a) Efficiency can become all - pervading
(b) Efficiency does not always pay
(c) Efficiency can be more of a torture than a blessing
(d) both (b) and (c)
(e) None of these

4. The company encourages its managers to interact regularly, without a pre-set agenda, to discuss issues concerning the company and society. This idea has been borrowed from the ancient Indian concept of religious congregation, called *satsang*. Designations are forgotten during these mettings; hence, it is not uncommon in these meetings to find a sales engineer questioning the CEO on some corporate policy or on his knowledge of customers
Based on the information provided in the above passage, it can be inferred that
(a) The company is concerned about its reputation with its employees.
(b) The company believes in fostering the spirit of dialogue without degenerating it into a position-based debate.
(c) The company has some inter-personnel problems in the past due to which it felt the need for these corporate satsangs.
(d) All of the above
(e) None of these

5. From Cochin to Shimla, the new culture vultures are tearing down acres of India's architectural treasures. Ancestral owners often fobbed off with a few hundred rupees for an exquisitely carved door or window, which fetches fifty times that much from foreign dealers, and yet more from the drawing room sophisticates of Europe and the US. The reason for such shameless rape of the Indian architectural wealth can perhaps, not wrongly, be attributed to the unfortunate blend of activist disunity and local indifference.
It can be inferred from the above passage that
(a) The environment created by the meeting between activist disunity and local difference is ideal for antique dealers to thrive in India.
(b) Only Indians are not proud of their cultural heritage and are hungry for the foreign currency that is easily available in return of artefacts.
(c) Most Indian families have heirlooms which can be sold at high prices to Europeans and Americans.
(d) India provides a rich market for unscrupulous antique dealers.
(e) None of these

6. Developed countries have made adequate provisions for social security for senior citizens. State insurers (as well as private ones) offer medicare and pension benefits to people who can no longer earn. In India, with the collapse of the joint family system, the traditional shelter of the elderly has disappeared. And a state faced with a financial crunch is not in a position to provide financial security, So, it is advisable that the working population give serious thought to building a financial base for itself.
Which one of the following, if it were to happen, weakens the conclusion drawn in the above passage the most
(a) The insurance sector is under developed and trends indicate that it will be extensively privatized in the future.
(b) The insurance sector is under developed and trends indicate that it will be extensively privatized in the future.
(c) India is on a path of development that will take it to a developed country status, with all its positive and negative implications.

(d) If the working population builds a stronger financial base, there will be a revival of the joint family system.
(e) None of these

7. Animals in general are shrewd in proportion as they cultivate society. Elephants and beavers show the greatest signs of this sagacity when they are together in large numbers, but when man invades their communities they lose all their spirit of industry. Among insects, the labours of the bee and the ant have attracted the attention and admiration of naturalists, but all their sagacity seems to be lost upon separation, and a single bee or ant seems destitute of every degree of industry. It becomes the most stupid insect imaginable, and it languishes and soon dies.
Which of the following can be inferred from the above passage
(a) Humankind is responsible for the destruction of the natural habitat of the animals and insects.
(b) Animals, In general, are unable to function effectively outside their normal social environment.
(c) Naturalists have great admiration for bees and ants, despite their lack of industry upon separation.
(d) Elephants and beavers are smarter than bees and ants in the presence of human beings.
(e) None of these

8. Szymanski suggests that the problem of racism in football may be present even today. He begins by verifying an earlier hypothesis tha clubs' wage bills explain 90% of their performance. Thus, if players' salaries were to be only based on their abilities, clubs that spend more should finish higher. If there is pay discrimination against some group of players-fewer teams bidding for black players thus lowering the salaries for blacks with the same ability as whites-that neat relation may no longer hold. He concludes that certain clubs seem to have achieved much less than what they could have, by not recruiting black players.
Which one of the following findings would best support Szymanski's conclusion?
(a) Certain clubs took advantage of the situational hiring above-average shares of black players.
(b) Clubs hiered white players at relatively high wages and did not show proportionately good performance.
(c) During the study period, clubs in towns with a history of discrimination against blacks, under performed relative to their wage bills
(d) Clubs in one region, which had higher proportions of black players, had significantly lower wage bills than their counterparts in another region which had predominantly white players.
(e) None of these

9. The pressure on Italy's 257 jails has been increasing rapidly. Those jails are old and overcrowded. They are supposed to hold up to 43,000 people -----9, 000 fewer than now. San Vittore in Milan, which has 1, 800 inmates, is designed for 800. The number of foreigners inside jails has also been increasing. The minister in charge of prisons fears that tensions may snap, and so has recommended to government an amnesty policy ?
Which one of the following, if true, would have most influenced the recommendation of the minister?
(a) Opinion polls have indicated that many Italians favour a general pardon.
(b) The opposition may be persuaded to help since amnesties must be approved by a two-thirds majority in parliament.
(c) During a recent visit to a large prison, the Pope whose pronouncements are taken seriously, appealed for 'a gesture of clemency'
(d) Shortly before the recommendation was made, 58 prisons reported disturbances in a period of two weeks.
(e) None of these

10. Although in the limited sense of freedom regarding appointment and internal working, the independence of the Central Bank is unequivocally ensured, the same cannot be said of its right to pursue monetary policy without co-ordination with the central government. The role of the Central Bank has turned out to be subordinate and advisory in nature.
Which one of the following best supports the conclusion drawn in the passage?
(a) The decision of the chairman of the Central Bank to increase the bank rate by two percentage points sent shock waves in industry, academic and government circles alike.
(b) Government has repeatedly resorted to monetisation of the debt despite the reservations of the Central Bank.
(c) The central Bank does not need the central government's nod for replacing soiled currency notes.
(d) The inability to remove coin shortage was a major shortcoming of this government.
(e) None of these

11. "If you want a hassle-free holiday package for city M, then join only our tour. Hurry up; only a few seats available" – An advertisement of XYZ Tourist Company.
If the above statement is true then which of the following has been assumed while making the statement?
(a) No seats may be available with other tour operators for city M.
(b) Nowadays people have a lot of money to spend on their comforts.
(c) Travel packages offered by other tour operators are neither cheap nor comfortable.
(d) Many people desire convenience and comfort while going for a holiday.
(e) None of these

12. Psychological research indicates that college hockey and football players are more quickly moved to hostility and aggression than are college athletes in non-contact sports such has swimming. But the researchers' conclusion—that contact sports encourage and teach participants to be hostile and aggressive—is untenable. The football and hockey players were probably more hostile and aggressive to start with, than the swimmers. Which of the following, if true, would most strengthen the conclusion drawn by the psychological researchers?

(a) The football and hockey players became more hostile and aggressive during the season and remained so during the off season, whereas there was no increase in aggressiveness among the swimmers.
(b) The football and hockey players, but not the swimmers, were aware at the start of the experiment that they were being tested for aggressiveness.
(c) The same psychological research indicated that the football and hockey players had a great respect for cooperation and team play, whereas the swimmers were most concerned with excelling as individual competitors.
(d) The research studies were designed to include no college athletes who participated in both contact and non-contact sports.
(e) None of these

13. The argument for liberalisation which answers the worries of the Left parties about the possible trade deficits created by the opening up of the Indian economy goes thus: 'In today's economic scenario, where there are many trading countries, the trade between two specific countries need not be balanced. The differing demands of goods and services and the differing productive capabilities of the same among different countries will cause a country like India to have trade deficits with some countries and surpluses with other countries. On the whole, the trade deficits and surpluses will balance out in order to give a trade balance'. Which of the following conclusions best summarises the argument presented in the passage above?
(a) Left parties need not worry about trade deficits in India since its trade will always be in balance even though it runs a deficit with a single country.
(b) India's trade deficits and surpluses with other countries always balance out.
(c) The Left parties in India should not be concerned about India's trade deficits with specific countries because they will balance out in the long run.
(d) None of these
(e) None of these

14. In a famous experiment at the IISC campus, when a cat smelled milk, it salivated. In the experiment, a bell was rung whenever food was placed near the cat. After a number of trials, only the bell was rung, whereupon the cat would salivate even though no food was present. Such behaviour has been observed in other animals such as dogs, monkeys, etc. and is a vital input for training domesticated animals. Which of the following conclusions may be drawn from the above experiment?
(a) The ringing of a bell was associated with food in the mind of the cat.
(b) Cats and other animals can be easily tricked.
(c) A conclusion cannot be reached on the basis of one experiment.
(d) Two stimuli are stronger than one.
(e) None of these

15. A mail-order company recently had a big jump in clothing sales after hiring a copywriter and a graphic artist to give its clothing catalog a magazine-like format designed to appeal to a more upscale clientele. The company is now planning to launch a housewares catalog using the same concept. The company's plan assumes that
(a) An upscale clientele would be interested in a housewares catalog
(b) Other housewares catalogs with magazine - like formats do not already exist
(c) The same copywriter and graphic artist could be employed for both the clothing and housewares catalogs
(d) Customers to whom the old clothing catalog appealed will continue to make purchase from catalogs with the new format
(e) None of these

16. The fare-paying capacity of people who travel on routes connecting to small towns is very low. Most successful airlines which operate in such regions have a large number of seats.
Which of the following can be inferred from the above information ?
(a) Regional airlines are quite profitable.
(b) People from cities are increasingly travelling to small towns.
(c) Regional airlines have to charge low fares in order to be profitable.
(d) The number of people travelling from small towns to cities is massive.
(e) None of these

17. All existing and upcoming hotels within a 5 km radius of national parks and sanctuaries in India will have to pay 30% of their annual turnover as tax to the government.
Which of the following statements can be inferred from the facts/information given in the above statement?
(a) The tax collected from the hotels will be used for the betterment of these national parks and sanctuaries.
(b) Hotels which are sponsored by the government will not have to pay any tax even if these are located within the 5 km radius of such wildlife hotspots.
(c) The ecosystem of the national parks and sanctuaries is adversely affected even if the hotels are located outside the 5 km radius.
(d) Government allows the construction of hotels within 5km radius of national parks and sanctuaries.
(e) Such a step is taken by the environment ministry to boost eco-tourism and perk up revenue collection of State governments.

Directions (Qs. 18-20): Study the following information carefully and answer the given questions.

The prospects for the Indian economy this year will be influenced by the behaviour of the monsoon and expansion of commerce and trade. The Eleventh Plan has envisaged a growth target of 8%. If the agriculture sector does well and the world trade

conditions improve then it is possible to achieve a growth of 6-7%. We need to improve our economy and aim at a higher rate of growth in order to feed our population, maintain the standard of living and improve the quality of life. It is now more than 10 years since we have adopted reforms. We need to go forward in liberalisation but we cannot throw open the market for everything. There are sectors like village industries which need protection.

18. Which of the following is an assumption which is implicit in the facts stated in the above paragraph?
    (a) India should adopt economic policies of developed countries.
    (b) Free market strategy is beneficial for India, but not in all the sectors.
    (c) Over the last few years, we have achieved sustained growth.
    (d) A very good monsoon is expected this year.
    (e) None of these
19. Which of the following is an inference which can be drawn from the facts stated in the paragraph?
    (a) The world trade conditions don't affect Indian economy.
    (b) The world trade conditions have a major impact on Indian economy.
    (c) Indian economy has been downgraded since last decade.
    (d) Govt should cut the subsidies in order to obtain sustained growth.
    (e) None of these
20. Which of the following is a conclusion which can be drawn from the facts stated in the above paragraph?
    (a) India may become a super economic power some day.
    (b) The standard of living of people has continuously degraded in India.
    (c) Growth of Indian economy and a good monsoon are complement of each other.
    (d) Indian economy is on the peak of growth.
    (e) None of these

Directions (Qs. 21-23): Study the following information to answer the given questions.

Science is a sort of news agency comparable in principle to other news agencies. But this news agency gives us information which is reliable to an extraordinarily high degree due to elaborate studies spread over centuries. So, science should be read with the same interest with which we read news.

21. Which of the following will weaken the above argument?
    (a) Man is an intelligent creature.
    (b) Science gives information.
    (c) Scientific information is revised.
    (d) News agencies cannot verify news.
    (e) None of these
22. Which of the following may be regarded as an assumption in the above passage?
    (a) Verification of news is necessary.
    (b) Science encourages investigative spirit.
    (c) Science is objective in approach.
    (d) Science gives us news and not any other information regarding national phenomenon.
    (e) None of these
23. Which of the following strengthens the argument?
    (a) Agricultural research is scientific.
    (b) Science gives abstract theories.
    (c) Verified information is reliable.
    (d) Science is a compulsory subject.
    (e) None of these

Directions (Q. 24-25) : In the following questions a paragraph is given. Read the paragraph carefully and answer the questions which follow each of these paragraph.

Fashion has become one of the largest fads among the youth. The amount of time wastage and expenditure on fashion is very large. What bothers, however, is the fact that fashion is here to stay despite countless arguments against it. What is required, therefore, is that strong efforts should be made in order to displace the excessive craze of fashion from the minds of today's youth.

24. Which of the following statements finds the least support by the argument made by the author in the given paragraph?
    (a) Youngsters should be motivated to do constructive business rather than wasting time on fashion.
    (b) The world of fashion being glamorous and glittery attracts people towards itself.
    (c) Following the latest fashion increases the self-efficacy of people, thus increasing their overall mental abilities.
    (d) Many universities have implemented a dress code to put a check on the increasing fad amongst the youth which was affecting their grades.
    (e) None of these
25. Which of the following can be inferred from the given paragraph?
    (a) The author has made strong efforts to wipe out fashion from the minds of youth.
    (b) Steps need to be taken in order to control the growing fad of fashion amongst the youth.
    (c) The author is upset with the shift" of fashion from the traditional ethnic wear to western outfits.
    (d) Fashion world is responsible for lack of creativity among the youth.
    (e) None of these

Directions (Qs. 26- 28) : Study the following Information carefully and answer the questions given below :

Poverty measurement is an unsettled issue, both conceptually and methodologically. Since poverty is a process as well as an outcome; many come out of it while others may be falling into it. The net effect of these two parallel processes Is a proportion commonly identified as the 'head count ratio', but these ratios hide the fundamental dynamism that characterises poverty in practice. The most recent poverty reestimates by an expert group has also missed the crucial dynamism. In a study conducted on 13.000 households which represented the entire country In 1993-94 and again on 2004-05. it was found that in the ten-year period 18.2% rural population moved out of poverty whereas another 22.1% fell into it over this period. This net increase of about four percentage points was seen to have a considerable variation across states and regions.

26. Which of the following is a **conclusion** which can be drawn from the facts slated in the above paragraph ?
(a) Accurate estimates of number of people living below poverty line in India is possible to be made.
(b) Many expert groups in dia are not interested measure poverty objectively.
(c) Process of poverty measurement needs to take into account various factors to tackle its dynamic nature.
(d) People living below poverty line remain in that position for a very long time.
(e) None of these

27. Which of the following is an **assumption** which is **implicit** in the facts stated In the above paragraph ?
(a) It may not be possible to have an accurate poverty measurement in India.
(b) Level of poverty in India is static over the years.
(c) Researchers avoid making conclusions on poverty measurement data in India.
(d) Government of India has a mechanism to measure level of poverty effectively and accurately.
(e) None of these

28. Which of the following is an **inference** which can be made from the facts stated in the above paragraph ?
(a) Poverty measurement tools in India arc outdated.
(b) Increase in number of persons falling into poverty varies considerably across the country over a period of time.
(c) Government of India has stopped measuring poverty related studies.
(d) People living in rural areas are more susceptible to fall into poverty over the time
(e) None of these

Directions (Qs. 29-31) : Study the following information carefully and answer the given questions.

The management of school M has decided to give free breakfast from next academic year to all the students in its primary section through its canteen even though they will not get any government grant.

(A) The school will have to admit many poor students who will seek admission for the next academic year.
(B) The canteen facilities and utensils have to be checked and new purchases to be made to equip it properly.
(C) Funds will have to be raised to support the scheme for years to come.
(D) All students will get the more nutritious food at free of cost.
(E) This decision will attract many students to get admission at school M
(F) Breakfast will not be nutritious and safe and it can be harmful for health.

29. Which of the following (A), (B) and (C) can be an immediate **course of action** for the management?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Both (B) and (C)
(e) None of these

30. Which of the following among (A), (B), (E) and (D) may be the **reason** behind the management taking such decision?
(a) Only (A) (b) Only (B)
(c) Both (A) and (E) (d) Only (E)
(e) Only (D)

31. Which of the following A, B, E and F may be an immediate **effect** if there will be shortcomings in the proper arrangement of breakfast?
(a) Only (A) (b) Only (B)
(c) Only (E) (d) Only (F)
(e) Both (E) and (F)

Directions (Qs. 32-34) : Study the following information carefully and answer the given questions.

An advertisement of furniture company :

"The simplest and the most cost-effective way to upgrade your home–

Exchange your old furniture and get 25% to 33% off on the new furniture.

(A) Now a days, there is no demand for furniture products unless some attractive scheme is offered.
(B) Some customers always desire to have best quality and do not bother either for cost or for convenience.
(C) Some customers want to keep their home up to date with reasonable cost and with hassles.
(D) Generally, these types of advertisements increase the sell of particular products.
(E) This advertisement will increase the sell of furniture products of company and customers will also get benefit from this scheme.
(F) Now-a-days companies usually cheat customers by giving heavy discount.

32. Which of the following among (A), (B), (C) and (D) is **implicit** in the advertisement given above?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Both (A) and (C)
(e) Only (D)

33. Which of the following among (A), (B), (D) and (E) can be an immediate **cause** for giving this type of advertisement?
(a) Only (A) (b) Only (B)
(c) Only (D) (d) Only (E)
(e) Both (A) and (D)

34. Which of the following among (B), (C), (D) and (E) may be a **strong argument** in favour of, both, the company and the customer?
(a) Only (B) (b) Only (E)
(c) Only (C) (d) Only (D)
(e) Both (D) and (E)

Directions (Qs. 35-38) : Study the following information carefully and answer the given questions.

Population increase coupled with depleting resources is going to be the scenario of many developing countries in days to come.

(A) The population of developing countries will not continue to increase in future.
(B) It will be very difficult for the governments of developing countries to provide its people decent quality of life.
(C) Governments of developing countries should make laws and implement them immediately to check the excessive growth of population.
(D) In developing countries, people get marriages at early age.
(E) Mostly in developing countries, girls' literacy rate is very low.

35. Which of the following (A), (B), (C) and (D) many be a **conclusion** that logically follows beyond a reasonable doubt from the information given above.
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Only (D)
(e) Both (A) and (B)

36. Which of the following (A), (B), (D) and (E) is quite **contrary** to the given information?
(a) Only (A) (b) Only (B)
(c) Only (D) (d) Only (E)
(e) None of these

37. Which of the following (A), (B), (C) and (D) can be a **course of action** for the governments of developing countries?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Only (D)
(e) All of these

38. Which of the following (A), (B), (D) and (E) can be the **reason** behind the population increment?
(a) Only (A) (b) Only (B)
(c) Only (D) (d) Only (E)
(e) Both (D) and (E)

Directions (Qs. 39-41) : Study the following information carefully and answer the given questions.

Many private sector banks have reduced interest rate on housing loans in comparison to public sector banks.

(A) The case should be raised before the regulatory authority for investigation by the public sector banks as they cannot follow such reduction.
(B) Public sector banks must adopt such policy to remain in competition.
(C) The public sector banks should advertise their special feature repeatedly so that they do not lose their future customers.
(D) Now-a-days customers have been very aware on taking house loans. They search everything.
(E) Sometimes private sector banks reduce interest rate on housing loans for a limit period.
(F) Public sector banks are more reliable than private sector banks.

39. Which of the following among (A), (B), (C) and (F) can be an immediate **course of action** for the public sector banks?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Both (B) and (C)
(e) Either (B) or (C)

40. Which of the following among (B), (C) (D) and (E) can be the **cause** behind the reduction interest rate on housing loans in comparison to public sector banks?
(a) Only (B) (b) Only (D)
(c) Only (C) (d) Only (E)
(e) Both (D) and (E)

41. Which of the following among (A), (B), (E) and (F) may be a **weak argument** in favour of the private sector banks?
(a) Only (A) (b) Only (B)
(c) Only (E) (d) Only (F)
(e) Both (E) and (F)

Directions (Qs. 42-44) : Study the following information carefully and answer the given questions.

There have been quite a few incidents of highway robbery on the super expressway between cities A and B during recent months.

(A) The local administration should immediately set up police tickets along the expressway to prevent robbery.
(B) The local administration should immediately close down the expressway till the robbers are apprehended.
(C) More and more people should be given training on how to tackle with the robbers.
(D) Due to unemployment people do illegal work.
(E) There is a lack of security arrangements on the super express way between cities A and B.
(F) These incidents will increase anarchy in the whole country.

42. Which of the following (A), (B), (C) and (D) may be a practical **course of action** for the local administration?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Only (D)
(e) Both (B) and (C)

43. Which of the following among (C), (D), (E) and (F) may be the **effect** of these robberies?
(a) Only (C) (b) Only (D)
(c) Only (E) (d) Only (F)
(e) Both (E) and (F)

44. Which of the following among (C), (D), (E) and (F) may be the **cause** of these incidents of highway robbery?
(a) Only (C) (b) Only (D)
(c) Only (E) (d) Only (F)
(e) Both (D) and (E)

Directions (Qs. 45-47) : Study the following information carefully and answer the given questions.

The successful man has the ability to judge himself correctly.

(A) Inability to judge correctly causes failure.
(B) To judge others is of no use to a successful man.
(C) The successful man cannot make a wrong judgement.
(D) Hard-working is the key of success.
(E) A successful man can not judge others.
(F) A successful man does not look in to the future.

45. Which of the following among (A), (B), (C) and (D) is **implicit** in the information given above?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) ONly (D)
(e) (A), (B) and (C)

46. Which of the following among (A), (B), (C) and (D) is the **cause** of success?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Only (D)
(e) None of the above

47. Which of the following (C), (D), (E) and (F) is a **weak argument** in favour of successful man?
(a) Only (C) (b) Only (D)
(c) Only (E) (d) Only (F)
(e) Both (E) and (F)

Directions (Qs. 48-50) : Study the following information carefully and answer the given questions.

Any further increase in the population level in the city by way of industrial effluents and automobile exhaustions would pose a severe threat to the inhabitants.

(A) All the factories in the city should immediately be closed down.
(B) The automobiles should not be allowed to ply on the road for more than four hours a day.
(C) The government should restrict the issue of fresh licences to factories and automobiles.
(D) Cancer, heart attacks, brain strokes, tuberculosis are the major disease which are rapidly increasing in industrial cities.
(E) All types of pollutants are very harmful for health.
(F) Excessive growth of industries has increased the pollution level in the city.

48. Which of the following among (A), (B), (C) and (D) can be an immediate **course of action** for the Government?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Only (D)
(e) All of these

49. Which of the following among (A), (B), (C) and (D) can not be an immediate **course of action** for the government?
(a) Only (A) (b) Only (B)
(c) Both (A) and (B) (d) Only (D)

50. Which of the following (A), (B), (D) and (E) may be the **effect** of increment in the pollution level in the city?
(a) Only (A) (b) Only (B)
(c) Only (D) (d) Only (E)
(e) None of these

Directions (Qs. 51 & 52) : Study the following information carefully and answer the given questions.

The standard of education in private schools is much better than Municipal and Zila Parishad-run schools.

(A) The Municipal and Zila Parishad should make serious efforts to improve standard of their schools.
(B) All Municipal and Zila Parishad schools should be closed immediately.
(C) Government should raise the standard of education in Municipal and Zila Parishad run schools.
(D) Private schools charge high amount fees for imparting education.
(E) Private sector works better than government sector almost in all areas.

51. Which of the following among (A), (B), (C) and (D) may be the **conclusion** which logically follows the given information?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Only (D)
(e) Both (A) and (B)

52. Which of the following among (A), (C), (D) and (E) may be the **reason** behind the better standard of education in private schools?
(a) Only (A) (b) Only (C)
(c) Only (D) (d) Only (E)
(e) Both (D) and (E)

Directions (Qs. 53-55) : Study the following information carefully and answer the given questions.

A large number of students are reported to be dropping out of school in villages as their parents want their children to help them in farms.

(A) The governments should immediately launch a programme to create an awareness among the farmers about the value of education.
(B) The government should offer incentives to those farmers whose children remain in schools.
(C) Education should be made compulsory for all children upto the age of 14 and their employment banned.
(D) Poverty is increasing and people do not have proper food to eat.
(E) Mostly parents are illiterate, they do not know the value of education.
(F) Lack of education will hamper the growth of country in future.

53. Which of the following among (A), (B), (C) and (F) can be an immediate **course of action** for the government?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) (A), (B) and (C)
(e) Both (A) and (B)

54. Which of the following among (D), (E) and (F) may be the **reason** behind the dropping out of school by large number of students?
(a) Only (D) (b) Only (E)
(c) Only (F) (d) Both (D) and (E)
(e) All of these

55. Which of the following (A), (B), (E) and (F) may be an **effect** of the dropping out of school by large number of students?
(a) Only (A) (b) Only (B)
(c) Only (F) (d) Only (E)
(e) None of these

Directions (Qs. 56-58) : Study the following information carefully and answer the given questions.

Admission to all professional courses should be made on the basis of past academic performance rather than through entrance tests.

(A) It will be beneficial for those candidates who are unable to bear the expenses of entrance tests.

(B) Many deserving candidates securing high marks in their qualifying academic examinations do not perform well on such entrance tests.

(C) The standard of examinations and assessment conducted by different Boards and universities are not comparable and hence there is a need to conduct entrance tests to calibrate them on a common yardstick.

(D) Entrance tests are mandatory to conduct because there is a lot of corruption in schools.

(E) If all professional courses are made on the basis of past academic performance, the rate of academic performance will increase.

(F) The government should organise systematically entrance tests for all professional courses.

56. Which of the following (A), (B), (C), and (D) may be a **strong argument** in favour of organising entrance tests?
(a) Only (A) (b) Only (B)
(c) Only (C) (d) Only (D)
(e) Both (C) and (D)

57. Which of the following (A), (B), (E) and (F) may be the **effect** if all professional courses are made on the basis of part academic performance?
(a) Only (A) (b) Only (B)
(c) Only (E) (d) Only (F)
(e) Both (A) and (E)

58. Which of the following (B), (C), (E) and (F) can be a **course of action** for the Government in favour of organising entrance tests?
(a) Only (B) (b) Only (C)
(c) Only (E) (d) Only (F)
(e) None of these