General Intelligence and Reasoning

Торіс	Page Number	Weightage
Scheduling	2-17	0-5
Coding - Decoding	18-27	3-4
Machine Input and Output	28-43	3-4
Series and Analogy	44-57	2-4
Direction Sense	58-72	2-4
Basic and Coded Inequality	73-82	4-5
Linear Seating Arrangement	83-98	4-5
Circular Seating Arrangement	99-113	4-5
Blood Relation	114-119	2-4
Puzzles	120-145	5-10
Assumptions and Conclusions	146-151	1-3
Data Sufficiency	152-155	3-5
Syllogism	156-167	4-5

SCHEDULING

For enhancing your pace and helping you out, I'm here with an important topic of the **Reasoning Section** "<u>Scheduling</u>" that can boost up your score and turn you into an employee from an aspirant of banking examination.

Scheduling

Scheduling means an ordered list of time at which certain things are meant to occur. In Logical reasoning, we use it to arrange the given data in a systematic form according to the schedule of time/date/day/month/year.

Points to be remembered before starting the arrangement based on schedule:

- 1. Firstly, shortlist fixed/definite information from the given data, which means data that is not dependent on other information.
- 2. Start with that information through which the least possible cases can be formed.
- 3. Always draw a table while solving scheduling puzzles.
- 4. Always remember to analyze the question before you come up with any solution.
- 5. If you get confused at any point in time. Try to write down the gist of the given puzzle.
- 6. Don't be afraid to spend time studying the puzzle and the questions. Take time to understand them, otherwise you might misunderstand and get the whole puzzle wrong.

These points will definitely improve your performance and help you crack any **<u>Banking</u>** <u>**Examination**</u>.

Types of scheduling:

- 1. Day based
- 2. Month based
- 3. Year based
- 4. Date & time based
- 5. Time & days based

Some important tips/points which will reduce the chances of mistakes in scheduling:

1. **Remember the number of days in any month**: If you get confused about the number of days in a month then use one form of **mnemonic** that is done by counting on the knuckles of one's hand. Start counting the months (January, February, and so on till December) on the consecutive knuckles and depressions of your wrist. Now, the months that fall on knuckles have 31 days and the months that fall on

depressions between knuckles have 30 days (or 28/29) days. This way you can find out the number of days in any month very easily.

- 2. **Elder/younger case**: If someone was born in January and another person was born in March then the person who was born in January is older and the person who was born in March is younger.
- 3. **'X' months/years/days before**: Let us say if A was born 3 months/years/days before B then, we would show it like this

А	
В	

There would be only two lines between A and B, not three lines. Sometimes students mark 3 lines and this way they end up forming a wrong table. The same logic will be applied for 'X months/years/days after' case; here only the alphabets will get reversed.

4. **3 months/years/days between**: In between cases, we will have 3 lines between the given variables.

Note: If the question has multiple variables, choose any one variable as your reference through which you can draw all the other conclusions. This variable should be the one that has the most definite information about it. This will make your puzzle-solving process a lot easier.

Now let us work on some questions.

Day-based:

Q1. Study the following information and answer the given question.

A, B, C, D, E, F, and G go to the mall on different days of the week starting from Sunday till Saturday. They do jobs at different shops viz. Pharmacy, Bakery, Grocery, Garment, Electronics, Mobile, and Hardware. C works at a bakery shop but goes there neither on Saturday nor on Thursday. E goes on Tuesday and works at the hardware shop. A goes on Friday but works neither in pharmacy nor in a garment shop. The one who goes on Monday works at a grocery shop. The one who works at the pharmacy shop goes to the mall on Wednesday. F works in a garment shop. G works in the electronic shop and goes on Saturday. D does not go to the mall on Monday.

Solution: First of all, we choose the reference variable for our table. Here the most appropriate reference are the persons. Now, we will start with the definite information.

E goes on Tuesday and works at the hardware shop.

F works in a garment shop.

G works in the electronic shop and goes on Saturday.

C works at a bakery shop but goes there neither on Saturday nor on Thursday.

A goes on Friday but works neither in pharmacy nor in a garment shop.

D does not go to the mall on Monday.

Person	Shop	Day
A	(Not Pharmacy Not Garment)	Friday
В		
С	Bakery	(Not Saturday Not Thursday)
D		(Not Monday)
E	Hardware	Tuesday
F	Garment	
G	Electronic	Saturday

From the above table, it is clear that either B or D must go to the Pharmacy shop.

Now, the remaining information:

The one who goes on Monday works at a grocery shop. (From this we can infer that D does not go to the Grocery shop. Hence, B goes to the Grocery shop on Monday and D goes to the Pharmacy shop. Now, in the shops column, the only left space will be filled by Mobile)

The one who works at the pharmacy shop goes to the mall on Wednesday. (Thus D goes on Wednesday.

Now, the only day left for C is Sunday and hence F goes on Thursday.

So, our final arrangement will be as shown below:

Person	Shop	Day
A	Mobile	Friday
В	Grocery	Monday
С	Bakery	Sunday
D	Pharmacy	Wednesday

E	Hardware	Tuesday
F	Garment	Thursday
G	Electronic	Saturday

Now we will deal with the following questions based on this puzzle:

1. D is associated with which field?

- A. Garment
- B. Pharmacy
- C. Mobile
- D. Electronics
- E. Bakery

Ans. Option B

According to the table, D is associated with pharmacy.

- 2. Who goes to the mall on Saturday?
 - A. B
 - B. C
 - C. G
 - D. D
 - E. None of these

Ans. Option C

We can see in the table that G goes to the mall on Saturday.

3. If G is related to Thursday in a certain manner, similarly D is related to Monday, then with which day is A related to?

- A. Wednesday
- B. Saturday
- C. Tuesday
- D. Sunday
- E. None of these

Ans. Option A

According to the question G is related to Thursday and D is related to Monday means two days above/before the assigned day for that person. Similarly, A will be related to Wednesday, which is 2 days before Friday.

4. Which of the following is the wrong match?

- A. Thursday F Garment
- B. Wednesday D Pharmacy
- C. Monday B Grocery
- D. Saturday C Bakery
- E. None of these

Ans. Option D

According to the question, G goes on Saturday, not C. So, option D is the wrong match.

5. In a certain manner, Bakery is related to D, similarly, Hardware is related to A. So, who is related to Grocery?

- A. G
- B. F
- C. D
- D. E
- E. B

Ans. Option B

Here, bakery is related to D and hardware is related to A means three 3 days after the assigned day.

Bakery - Sunday; D - Wednesday (Sunday + 3 days = Wednesday)

Hardware - Tuesday; A - Friday (Tuesday + 3 days = Friday)

So, 3 days after B (which is related to Grocery - Monday) is Thursday, which is related to F.

Time and day based:

Q2. Study the following information carefully and answer the questions given below them:

After months of talent searching for an Administrative Assistant to the President of the college, the field of applicants has been narrowed down to five (A, B, C, D, and E). It was announced that the finalist would be chosen after holding a series of all-day group personal interviews. The examining committee agreed upon the following procedure:

- 1. Interviews will be held once a week.
- 2. Not more than three candidates will appear at any all-day interview session.
- 3. Each candidate will appear at least once.
- 4. If it becomes necessary to call applicants for an additional interview, then not more than one such applicant should be asked to appear the next week.
- 5. Because of a detail in the written application, it was agreed that whenever candidate B appears, A should be present.
- 6. Because of the travel difficulties, it was agreed that C will appear for only one interview.

- 1. Which of the following correctly states the procedure followed by the search committee?
 - 1. After the second interview, all the applicants have appeared at least once.
 - 2. The committee sees at least one applicant a second time.
 - 3. If a third session is held, then it is possible for all the applicants to appear at least twice.
 - A. 2 only
 - B. 1 only
 - C. 1 and 2 only
 - D. 3 only
 - E. None of these

Ans. Option E

Since a maximum of 3 applicants can go per week where only one of them is allowed to be repeated and the others are new, hence, within 2 interviews 6 candidates can be interviewed out of which one is the same as before. Hence, 5 candidates can be interviewed in 2 weeks. But it is not necessary that 3 applicants come every week. Thus, it is not true.

Since a maximum of 3 applicants is to go each week. 3 applicants in 1st week and the remaining 2 in 2nd week can be called for an interview. Thus, the committee sees at least one applicant a second time is not compulsory. Hence, this statement is not true.

If a 3rd session is held then, there will be 9 interviews in 3 weeks. Since there are 5 candidates, 10 interviews will be required for each candidate to appear twice. Hence, this statement is not true.

Hence, none is true or correct regarding the procedure. That's why we will go with the option - none of these.

2. Which of the following is a possible sequence of combinations for interviews in two successive weeks?

- A. ABC: ABE
- B. ABC: BDE
- C. ADE: ABC
- D. BDE: ACD
- E. None of these

Ans. Option C

ABC: ABE = According to the given information, not more than one applicant can be asked to appear the next week for an additional interview, therefore, this is not the correct option because A and B both are repeated.

ABC: BDE and BDE: ACD = In BDE, A is not present in both cases, so both are not correct because whenever B appears, A should also be present.

ADE: ABC = Since, not more than one applicant can be asked to appear the next week for an additional interview, and only A is a repeated candidate so this is the correct option.

3. If A, B, and D appear at the interview, and D is called for an additional interview the following week, then which two candidates may be asked to appear with D?

- 1. A
- 2. B
- 3. C
- 4. E
- A. 1 and 3 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 3 and 4 only
- E. None of these

Ans. Option D

A, B, and D are present where D is called for an additional interview. Now, since D is called for the interview again, therefore, A and B can't go again next week. Hence, C and E are the correct candidates.

Date and time based:

Q3. Study the following information carefully and answer the questions given below them:

An exam is to be conducted on 14th, 15th, and 22nd of November, and on each day, there are 3 different shifts – 10 AM, 1 PM, and 4 PM. In this way, there are 9 different shifts in the exam. 9 friends Alok, Aman, Sagar, Vikas, Jai, Rao, Ansh, Harsh, and Sameer have their exams on these 9 different shifts but not necessarily in the same order. Only 2 persons have the exam after Aman. Two persons give exam between Alok and Rao. Only one person gives exam between Rao and Jai but Rao gives the exam before Jai. Rao gives the exam at 10 AM shift. Sagar and Aman does not give the exam on the same day. Only two persons give exam between Jai and Sagar but Jai gives the exam before Sagar. Sameer and Vikas have their exams on the same shifts of two different days. Only one person gives exam between Aman and Ansh but not on the same day. Sameer gives the exam before Sagar.

Solution. This is a date and time-based question so we will make the table according to both of it and calculate all the possibility outside of the table and the table would be like this:

Time (Row) Date (Column)	10 AM	1 PM	4 PM
14th Nov.	Rao	Sameer	Jai
15th Nov.	Alok	Ansh	Sagar
22nd Nov.	Aman	Vikas	Harsh

1. Who had given the examination on the 15th of November at 1 PM?

- A. Alok
- B. Rao
- C. Sameer
- D. Ansh
- E. None of these

Ans. Option D

According to the table, we can clearly get that Ansh had given the examination on the 15th of November at 1 PM.

- 2. Who did not give the exam before or after Sameer?
 - A. Rao
 - B. Jai
 - C. Sameer
 - D. Harsh
 - E. None of these

Ans. Option D

Rao is before Sameer and Jai is after Sameer, and Sameer himself wouldn't be the answer. So the correct answer would be Harsh.

This is all for this topic. This is an important, scoring, and quite an easy topic. Keep practicing and you will definitely ace it.

Practice Questions:

Q(1-5) Read the given information carefully and answer the following questions:

Ten friends - Arham, Banita, Chetna, Dharmesh, Ekta, Farah, Ganesh, Hiten, Ikshita and Jay, meet at a friend's party, where all of them tell each other their birthday months. Each one of them owns a cellphone of different brands - Samsung, iPhone, Mi, Nokia, Oppo,

Oneplus, Vivo, Honour, Asus and MotoG. No two of them have their birthdays in the same month. Ekta, who was born in one of the months after Dharmesh's birth month, owns a Vivo phone. The person born in July owns an Honour phone. The person born in September owns a Nokia phone. Ikshita was born two months before Dharmesh. MotoG phone is owned by either Hiten or Ikshita. Arham owns a Mi phone. Dharmesh was born a month after August but neither October nor December. Ganesh owns a Oneplus phone. Banita was born in one of the months before May. The person who was born in December owns a Oneplus phone while the one who was born in February owns a Mi phone. Hiten was born two months before the person who owns Honour phone. Jay was born in November and owns an Asus phone. Farah was born eleven months before Gautam. Banita owns neither Samsung nor Nokia nor Oppo phone. Chetna was born in the third month of the year and owns neither Oppo nor Oneplus phone.

- 1. Choose the option in which all the elements are matched correctly.
 - A. Banita April iPhone
 - B. Ekta October Vivo
 - C. Ganesh December Oneplus
 - D. Arham February Mi
 - E. All are correct

2. Who was born in the month of May and owns the cell phone of which brand?

- A. Banita, Mi
- B. Ikshita, Honour
- C. Ekta, Vivo
- D. Hiten, MotoG
- E. Dharmesh, Nokia
- 3. What is the birth month of the person who owns a Samsung cell phone?
 - A. January
 - B. April
 - C. March
 - D. August
 - E. July
- 4. What is the brand of Ikshita's cellphone?
 - A. Honour
 - B. Asus
 - C. Samsung
 - D. Nokia
 - E. Oneplus
- 5. Who was born in the month of June?
 - A. Ganesh
 - B. Hiten
 - C. Farah
 - D. Arham

E. No one

Solutions:

1. (E)

Solution:

1) Jay was born in November and owns an Asus phone.

2) Dharmesh was born a month after August but neither October nor December.

(Thus, Dharmesh was born in September)

3) Ganesh owns a Oneplus phone. Arham owns a Mi phone.

4) Ekta, who was born in one of the months after Dharmesh's birth month, owns a Vivo phone.

(Thus, Ekta could have her birthday in either October or December)

Person	Birth month	Phone brand
Arham		Mi
Banita		
Chetna		
Dharmesh	September	
Ekta	(December /October)	Vivo
Farah		
Ganesh		Oneplus
Hiten		
lkshita		
Jay	November	Asus

5) Banita owns neither Samsung nor Nokia nor Oppo phone.

6) MotoG phone is owned by either Hiten or Ikshita.

7) Ikshita was born two months before Dharmesh.

8) The person born in July owns an Honour phone.

9) The person born in September owns a Nokia phone.

(The above statements imply that Banita must own an iPhone because that is the only brand left)

Person	Birth month	Phone brand
Arham		Mi
Banita		iPhone
Chetna		
Dharmesh	September	Nokia
Ekta	(December /October)	Vivo
Farah		
Ganesh		Oneplus
Hiten		MotoG
Ikshita	July	Honor
Jay	November	Asus

10) Chetna was born in the third month of the year and owns neither Oppo nor Oneplus phone.

(Thus, only Samsung phone is left which Chetna must own. This also implies that Farah must own Oppo)

11) The person who was born in December owns a Oneplus phone while the one who was born in February owns a Mi phone.

Person	Birth month	Phone brand
Arham	February	Mi
Banita		iPhone
Chetna	March	Samsung
Dharmesh	September	Nokia
Ekta	(December /October)	Vivo
Farah		Орро
Ganesh	December	Oneplus
Hiten		MotoG
Ikshita	July	Honor
Jay	November	Asus

12) Farah was born eleven months before Gautam.

13) Hiten was born two months before the person who owns Honour phone.

14) Banita was born in one of the months before May.

Person	Birth month	Phone brand
Arham	February	Mi
Banita	April	iPhone
Chetna	March	Samsung
Dharmesh	September	Nokia

Ekta	October	Vivo
Farah	January	Орро
Ganesh	December	Oneplus
Hiten	Мау	MotoG
Ikshita	July	Honor
Jay	November	Asus

Hence, no one among the ten friends was born in the month of June.

2. (D)

Ans: Ikshita owns an Honour cell phone.

Person	Birth month	Phone brand
Arham	February	Mi
Banita	April	iPhone
Chetna	March	Samsung
Dharmesh	September	Nokia
Ekta	October	Vivo
Farah	January	Орро
Ganesh	December	Oneplus
Hiten	Мау	MotoG
Ikshita	July	Honor
Jay	November	Asus

3. (C)

Ans: Chetna owns a Samsung cellphone and she was born in March.

Person	Birth month	Phone brand	
Arham	February	Mi	
Banita	April	iPhone	
Chetna	March	Samsung	
Dharmesh	September	Nokia	
Ekta	October	Vivo	
Farah	January	Орро	
Ganesh	December	Oneplus	
Hiten	Мау	MotoG	
Ikshita	July	Honor	
Jay	November	Asus	

4. (A)

Ans: Hiten was born in the month of May and owns a MotoG cell phone.

Person	Birth month	Phone brand	
Arham	February	Mi	
Banita	April	iPhone	
Chetna	March	Samsung	
Dharmesh	September	Nokia	

Ekta	October	Vivo
Farah	January	Орро
Ganesh	December	Oneplus
Hiten	Мау	MotoG
Ikshita	July	Honor
Jay	November	Asus

5. (E)

Ans: All the options have all the three elements matched correctly.

Person	Birth month	Phone brand	
Arham	February	Mi	
Banita	April	iPhone	
Chetna	March	Samsung	
Dharmesh	September	Nokia	
Ekta	October	Vivo	
Farah	January	Орро	
Ganesh	December	Oneplus	
Hiten	Мау	MotoG	
Ikshita	July	Honor	
Jay	November	Asus	

CODING AND DECODING

For this topic, we just have to learn Alphabets. Yeah! We all have learned this in our nursery/pre-nursery classes, but we just have to look into those points which we missed out earlier or some points which were not as memorable before as " $2 \times 2 = 4$ " was.

For example, if I ask you what comes after the letter R? You can easily say S. But If I ask you that starting from A as 1, P will be at which position? Can you suddenly answer it? I guess, many of you, might not.

Coding and Decoding

Coding is a secretive language which is used to change the representation of the actual term/word/value. The coded language can be framed by:

1. Moving the letters one or more steps forward or backward.

2. Substituting numbers for letters and vice-versa.

3. Writing the letters of the given word in reverse order in part or in whole.

4. Replacing the letters in their natural series by the same positioned letters in their reverse series.

5. Replacing the letters by symbols.

6. Doing some mathematical operations with the positional values of letters in English alphabetical series or with the number of letters present in a word or both.

7. Representing the word by any fictitious word / letter / number / symbol.

So, let us start by learning the position of alphabets.

A	В	С	D	E	F	G	Н	I	J
1	2	3	4	5	6	7	8	9	10

к	L	М	N	0	Ρ	Q	R	S	Т
11	12	13	14	15	16	17	18	19	20

U	V	W	х	Y	Z
21	22	23	24	25	26

So, after learning this, you can easily tell that P comes at which position (i.e. 16). Or what comes 3 positions after O (i.e. R)

Note:

1. These are the positions assigned to the alphabets when A is appointed as 1. But in some scenarios, A can be appointed as 0. In such cases, all alphabets will have their preceding positions e.g. P will be on 15th and Z will be on 25th position.

2. If the question is asked about what comes after Z or at number 27 or 28, the alphabets will start repeating themselves in that order. Like, A will come after Z at number 27 and B will come at 28, and so on.

Now, we will go through every type of Coding related questions that you might face in the examination, and alongwith keep learning a quick and easy way to solve them all with 100% accuracy.

E.g. 1. In a certain code language, "MOTHER" is written as "OQVJGT". How is "RELIEF" written in that code?

Answer- Here, we can see that each letter of "MOTHER" is moved two steps forward to obtain "OQVJGT". So "RELIEF" should be written as "TGNKGH". (Please look at the table above if you have any doubt.)

Let's take another example.

E.g. 2. If FACE is coded as GBDF, then BADE will be coded as:

A. CBEF

18

B. CEBF

C. CFBE

D. CBFE

E. CBEA

Solution. Option A

First we need to read the complete question, then understand the coding pattern in it and then apply the same coding pattern with the given question word for choosing the appropriate answer from the given 5 options.

Here the word is coded by moving the letters one step forward

F + 1 = G A + 1 = B C + 1 = D E + 1 = FSimilarly, B + 1 = C A + 1 = B D + 1 = E E + 1 = FSo, our answer will be CBEF which is option A.

Isn't it simple? Now, let's look at a difficult one.

E.g. 3. In a certain code language, "CRASH" is coded as "XNXQG". How is "TRAIN" written in that code?

Answer- For words "CRASH" and "XNXQG", C is 5 steps ahead of X, R is 4 steps ahead of N, A is 3 steps ahead of X, S is 2 steps ahead of Q and H is 1 step ahead of G. So, in this pattern, "TRAIN" should be written as "ONXGM".

Questions of backtracking can also come. Like,

E.g. 4. In a certain code language, "CORNER" can be written as "EMTLGP". In that language, what is the meaning of "UFCBQU"?

Answer- Here, the first, third and fifth letter of "CORNER" (from left) are moved two steps forward and second, fourth and sixth letter is moved two steps backward. Or we can say, there is an alternate sequence of two steps forward and two steps backward.

So, to decode "UFCBQU" we have to move first, third and fifth letter 2 steps forward and second, fourth and sixth letter 2 steps backward. So, it will become "WDEZSS".

Now, let's move on to a different type:

E.g. 5. In a certain code language, "BAT" can be written as 23. How is "RABBIT" written in that code?

Answer- Here, if we calculate the number corresponding to the letters of "BAT", we get B + A + T = 1 + 2 + 20 = 23.

So, "RABBIT" can be written as, R + A + B + B + I + T = 18 + 1 + 2 + 2 + 9 + 20 = 52. So, the answer is 52.

E.g. 6. In a certain code language, "RAT" can be written as 18120. How is "MOUSE" written in that language?

Answer- This example is different from the previous one. In the previous example, we did the sum of the numbers corresponding to given letters.

In this example, the letters are replaced by their positional values in English alphabetical series, like, R comes at 18th, A comes at 1st and T comes at 20th position. So, "RAT" becomes 18120.

Similarly, "MOUSE" becomes 13 15 21 19 5.

Now we will discuss **Decoding**.

Decoding is the reverse of coding. Here the code needs to be deciphered with the help of given words. We use reverse series of the alphabet in decoding.

Alphabet in reverse series are:

z	Y	х	W	V	U	Т	S	R	Q
1	2	3	4	5	6	7	8	9	10

Р	0	N	Μ	L	К	J	I	Н	G
11	12	13	14	15	16	17	18	19	20

F	E	D	С	В	A
21	22	23	24	25	26

Note: On reaching Z, the series restarts from A and on reaching A, it restarts from Z.

Example of Decoding:

- E.g. 7. If ZXV stands for ACE; what will YZW stand for?
- A. ABD
- B. EAC
- C. SAD
- D. BAD
- E. DAD
- Solution. Option D
- Z is 1st in the reverse series and A is 1st in natural series).
- Z = A (1st position in reverse and natural series respectively)
- X = C (3rd position in reverse and natural series respectively)

21

V = E (5th position in reverse and natural series respectively)

Similarly,

Y	7	W	(letters in reverse series)
1	<u> </u>	vv	

B A D (letters in natural series)

2nd 1st 4th (Position of letters)

Hence, our answer is option D (BAD)

E.g. 8. In a certain code language, "BRAIN" is written as "%\$×++;" and "TIER" is written as "#+*\$". How is "TRAIN" written in that code?

Answer- We can make a table of the signs for the corresponding words.

Letter	В	R	А	I	N	т	E
Code	%	\$	×	+	÷	#	*

So, from this, it is clear that "TRAIN" can be written as "#\$×++".

Let's move on to a new type of question:

E.g. 9. If 'cat' is called 'blue', 'dog' is called 'pink', 'rat' is called 'black' and 'lion' is called 'orange', who would bark?

Answer- We know that in these four animals, only dog barks. But the 'dog' is called 'pink'. So, 'pink' is the correct answer.

E.g. 10. If 'car' is called 'airplane', 'bike' is called 'cycle', 'airplane' is called 'bike' and 'cycle' is called 'car', what would fly in the sky?

Answer- We know that airplanes fly in the sky. But here the 'airplane' is called 'bike'. So, 'bike' is the correct answer. (Don't get confused by the statement. We just have to focus on the exact answer and the changed name of the answer and nothing else.)

E.g. 11. If 'ugh pri qus' stands for 'nice healthy breakfast', 'teh pri rps' stands for 'very good breakfast' and 'kim ugh ptr' stands for 'nice dinner together', which word stands for 'healthy'?

Answer- In this type of question, we have to look for a common word and its code in two or more statements.

Here,

'ugh pri qus' \rightarrow 'nice healthy breakfast'

'teh pri rps' \rightarrow 'very good breakfast'

'kim ugh ptr' \rightarrow 'nice dinner together'

In the first and second sentences, only one word is common in both the coded and decoded sentences. i.e. 'breakfast' and 'pri'. So, 'pri' stands for 'breakfast'.

Also, in the first and third sentences, the common words are 'nice' and 'ugh'. So 'ugh' stands for 'nice'.

So, in the first sentence, 'qus' and 'healthy' are remaining. So, 'qus' stands for 'healthy'.

E.g. 12. In a certain code, '245' stands for 'study very hard', '794' stands for 'hard work pays' and '519' stands for 'study and work', which word stands for 'very'?

Answer- Here,

- '245' \rightarrow 'study very hard',
- $'794' \rightarrow 'hard work pays',$
- '519' \rightarrow 'study and work'

In statements 1 and 2, only one word and one number are common in both the coded and decoded sentences. i.e. 'hard' and '4'. So, '4' stands for 'hard'.

Also, in the first and third statement, the common word and number is 'study' and '5'. So '5' stands for 'study'.

So, in the first sentence, '2' and 'very' are remaining. So, '2' stands for 'very'.

All the types of questions that might be asked in **Banking Exams** from Coding-Decoding topic have been discussed above. Basic understanding with more and more practice will make you excel in this topic.

Practice Questions:

Q(1-5) Study the following information carefully and answer the questions given below:

In a certain code language,

'Taj is in Agra' is coded as 'ge si ni te',

'Hotel Taj is beautiful' is coded as 'fe ha si te', and

'Agra is beautiful city' is coded as 'fe ca si ge'.

1. What could be the meaning of Ja ki ca si in that language?

- A. Jaipur is pink city
- B. Agra is beautiful city
- C. Taj is in city
- D. Hotel is in city
- E. Taj Mahal is beautiful

2. How will Sky looks beautiful be written as in that language?

- A. ma ke li
- B. fe ma li
- C. ka li fe
- D. ha me fe
- E. Either 2 or 3
- 3. What is the code for Hotel?
 - A. ha
 - B. si
 - C. ca
 - D. ni
 - E. te

4. What does ca mean in that language?

- A. is
- B. hotel
- C. beautiful
- D. in
- E. city

5. What is the code for Agra?

- A. fe
- B. ca
- C. si
- D. ge
- E. ha

Solutions:

1. (A)

Ans:



After decoding the given statements, we get:

Ge means Agra.

Si means is.

Ni means in.

Fe means Beautiful.

Ha means Hotel.

Te means Taj.

Ca means City.

We are certain that **Ca** means **City** and **Si** means **is**, hence out of all the options, the meaning of the given code must be **Jaipur is pink city**.

2. (E)

Ans: Since, **Fe** means **Beautiful**, so either **ka li fe** or **fe ma li** can mean **sky looks beautiful**.

3. (A)

Ans: Ha means Hotel.

4. (E)

Ans: Ca means City.

5. (D)

Ans: Ge means Agra.

MACHINE INPUT AND OUTPUT

This topic is famous because most aspirants take a lot of time (approximately 10 minutes) in solving one single question of Input-Output but if you want to solve it in 2 minutes then kindly read this topic and practice all questions.

We will start with the introduction of machine input-output and then go through all the levels of questions by using simple and easy tricks.

Some important key points that you should know about input-output in reasoning:

- 1. In this type of question, we will get output from input by following some steps.
- 2. All steps will have some relation with each other, which will be the same in all steps and it can be either numeral relation or alphabetical relation.
- 3. Initially, the shortcut method seems tough, but it is truly easy after a few practice sessions.
- 4. You may not recite shortcut methods, you may grasp it by practicing with a pen and a paper.
- 5. Once you grasp the logic of the shortcut then you may easily cut down your time spent on input-output questions to less than a quarter of what you used to spend.

Let's move on to the introduction of the main topic:

Machine Input-Output

Questions related to machine input-output or simply input-output are a series of statements in different steps and are stated in a jumbled manner. It is a kind of computer or word-processing machine and this machine performs some operations on the input that is given.

In the machine input-output questions, the aspirant is given some kind of word and number arrangement. With each subsequent operation, the arrangement of the words and number changes. These operations are performed until a final arrangement is reached/performed in the loop. The aspirant is required to identify the hidden pattern in the rearrangement and apply it to the machine input question.

For example,

Input: Apple Ball Cat Doll Egg Fan Gun

Step 1: Gun Cat Ball Doll Egg Fan Apple

Step 2: Cat Gun Doll Ball Egg Apple Fan

Step 3: Fan Doll Gun Ball Egg Apple Cat

Step 4: Doll Fan Ball Gun Egg Cat Apple

Here you may see that an input of words is given, a pattern is followed by certain steps, and then step 4 is the output.

Note: To understand the pattern, it is often sufficient to look at the input, first, second and final steps of arrangement.

Do Remember: Output is the final step of rearrangement.

Types of question:

You may get the following types of arrangements in your question. The input may have

- 1. Only words
- 2. Only numbers
- 3. A mix of words and numbers
- 4. Symbols with words and numbers

Now to bring out the output, any sort of rearrangement can be applied step by step on the input.

Based on the logic used behind the rearrangement, we can classify these types of question as:

1. Rearrangements based on word/letter shifting

It can be single sifting or double shifting.

2. Rearrangements based on Ordering

Alphabetical order-

- Forward order it means from A to Z
- Reverse order it means from Z to A

Numerical order-

- Increasing order of given numbers
- Decreasing order of given number

The number of letters in a word- Arranging the word according to increasing/decreasing order of the number of letters in a word.

For example,

Input: Straw Pot Of Books Laptop

Step1: Laptop Straw Pot Of Books

Step 2: Books Laptop Straw Pot Of

Step 3: Straw Books Laptop Pot Of

Step 4: Pot Straw Books Laptop Of

Step 5: Of Pot Straw Books Laptop

In this example, 'laptop' has 6 letters so it comes at the first position in step 1 and rest of the words remain the same, 'books' and 'straw' have 5 letters but books will come first according to alphabetical order, so it comes on the first position in step 2 and rest of the series of step 1 will remain the same. Similarly, this will be carried on till 'of' comes at the first position, as it has the least number of letters.

3. Rearrangements based on Interchanging the positions of words and numbers

It can be a single word or number interchange or double from left to right or right to left.

4. Rearrangements based on Mathematical operations.

Any operation like addition, subtraction, multiplication, division can take place between the numbers given in the input series. The numbers can be chosen on the basis of them being odd / even / prime / divisible by / less than / greater than, etc.

This is all about the classification of input-output questions for **<u>Banking Exams</u>**. Now we will understand all of this with the help of a few examples.

Example 1.

Input: day 74 night 36 25 68 all for

- Step 1 : all day 74 night 36 25 68 for
- Step 2 : all 74 day night 36 25 68 for
- Step 3 : all 74 day 68 night 36 25 for
- Step 4 : all 74 day 68 for night 36 25
- Step 5 : all 74 day 68 for 36 night 25

Step 5 is the last step of the rearrangement of the input.

Look at the last step of the input, words are arranged in alphabetical order and the numbers are arranged in descending order. In all the steps, only one number/word is shifted. Shifting is performed from left to right only i.e. **Single Side Shifting**.

Example 2:

Input: games 79 go glacier 57 14 give 86 63 gender 42 get

Step I: glacier games 79 go 57 give 86 63 gender 42 get 41 Step II: gender glacier games 79 go 57 give 86 63 get 41 24 Step III: games gender glacier 79 go give 86 63 get 41 24 75 Step IV: give games gender glacier 79 go 86 get 41 go 75 36 Step V: get give games gender glacier go 86 41 24 75 36 97 Step VI: go get give games gender glacier 41 24 75 36 97 68 Step VI is the last step of the rearrangement of the input.

In this type, look at the final arrangement; the words are shifted as per the total number of letters in them. For Example, go – two-letter word; get – three-letter word and so on. Numbers are arranged in ascending order as per the input (but the digits are reversed while shifting. For Example 14 - 41, 42-24). In all the steps, both word and number are arranged at both the ends

Example 3:

of the row.

Input: 41 sprain 10 early 97 noble 26 65 ankle death Step I: 97 41 10 early noble 26 65 ankle death sprain Step II: noble 97 41 10 early 26 ankle death sprain 65 Step III: 41 noble 97 10 26 ankle sprain 65 early

Step IV: death 41 noble 97 10 ankle sprain 65 early 26

Step V: 10 death 41 noble 97 sprain 65 early 26 ankle

In this type, Output is obtained in the form of "**Number Word Number**". Both numbers and words are arranged in ascending order.

Example 4:

Input: any number less than 30 and more than 20 does not equal 40 Step I: than 20 any number less than 30 and more does not equal 40 Step II: than 20 than 30 any number less and more does not equal 40 Step III: than 20 than 30 equal 40 any number less and more does not Step IV: than 20 than 30 equal 40 number any less and more does not Step V: than 20 than 30 equal 40 number not any less and more does Step VI: than 20 than 30 equal 40 number not more any less and does

Step VII: than 20 than 30 equal 40 number not more less any and does

Step VIII: than 20 than 30 equal 40 number not more less does any

In this type, the words and the numbers are arranged side by side. For Example – than 30, equal 40. The words are arranged in reverse alphabetical order and the numbers are arranged in ascending order.

Here are some more tricks and tips for input-output questions for Banking Examinations:

Tips about the number of steps:

- 1. If there are 'n' words/digits in the input then at most 'n-1' steps are required to rearrange it completely.
- 2. The number of words/digits arranged until the present step is greater than or equal to the present step number.

Note: If the input is not given, we cannot determine the previous step from a given step or we cannot determine input from a given step.

Most important tip:

Sometimes, some words/numbers are arranged correctly by default, so in the case of default shifting we don't count that step and this step will be a part of the previous step.

By default shifting = No shifting

No step count

Part of the previous step

Few questions based on the latest pattern:

Input: Atul Suneel Swati Sandeep Sonika Manish Avantika Shahina

Step I: Avantika Atul Suneel Swati Sandeep Sonika Manish Shahina

Step II: Avanktika Sandeep Atul Suneel Swati Sonika Manish Shahina

Step III: Avantika Sandeep Shahina Atul Suneel Swati Sonika Manish

Step IV: Avantika Sandeep Shahina Manish Atul Suneel Swati Sonika

Step V: Avantika Sandeep Shahina Manish Sonika Atrul Suneel Swati

Step VI: Avantika Sandeep Shahina Manish Sonika Suneel Atul Swati

According to the above given input-output rearrangement, solve the following questions:

Q1. How many steps are required to complete the arrangement given below?

Input: Tarun Meena Nagma Amit Gausiya Sanjay Pradeep

Q2. What will be the second step of the input given below?

Input: Tarun Meena Nagma Amit Gausiya Sanjay Pradeep

Solution. For solving the above questions, firstly we will have to solve the given input-output and understand the pattern.

Input: Atul Suneel Swati Sandeep Sonika Manish Avantika Shahina

Step I: Avantika Atul Suneel Swati Sandeep Sonika Manish Shahina

Step II: Avanktika Sandeep Atul Suneel Swati Sonika Manish Shahina

Step III: Avantika Sandeep Shahina Atul Suneel Swati Sonika Manish

Step IV: Avantika Sandeep Shahina Manish Atul Suneel Swati Sonika

Step V: Avantika Sandeep Shahina Manish Sonika Atrul Suneel Swati

Step VI: Avantika Sandeep Shahina Manish Sonika Suneel Atul Swati

Step VII: Avantika Sandeep Shahina Manish Sonika Suneel Swati Atul

As we can see, we have been given only words in the input so we can use two patterns here: first is alphabetical order pattern and another is the number of letters in a word. Thus, we use both the criteria and check the rearrangement pattern.

Avantika = 8 letters, Atul = 4, Suneel = 6, Swati = 5, Sandeep = 7, Manish = 6, Shahina = 7, Sonika = 6

Now we will arrange these words in decreasing order of the number of letters and if two words have the same number then alphabetically which comes first will be in the first position.

Short-cut to save time: Despite writing the complete name or the first letter of the name, we will write the number of letters at the place of their name. It will help to solve patterns quickly and there will be very little chance of getting confused. In the case of having 2 words with the same number of letters, we can use the alphabet 'a and b' to show their priority.

So, when we use our shortcut then we will get output or final step like this:

8 7a 7b 6a 6b 6c 5 4 which is same as the given output.

Avantika Sandeep Shahina Manish Sonika Suneel Swati Atul

Now, this same pattern we will used for question 1,

Sol 1:

Input: Tarun Meena Nagma Amit Gausiya Sanjay Pradeep

This is the given input and we have to find out the total number of steps.

Tarun = 5, Meena = 5, Nagma = 5, Amit = 4, Gausiya = 7, Sanjay = 6, Pradeep = 7

Alphabetical and numeral rearrangement will be: Gausiya = 7a, Pradeep = 7b, Sanjay = 6, Meena = 5a, Nagma = 5b, Tarun= 5c, Amit = 4

Input: Tarun Meena Nagma Amit Gausiya Sanjay Pradeep

Step 1: Gausiya Tarun Meena Nagma Amit Sanjay Pradeep

Step 2: Gausiya Pradeep Tarun Meena Nagma Amit Sanjay

Step 3: Gausiya Pradeep Sanjay Tarun Meena Nagma Amit

Step 4: Gausiya Pradeep Sanjay Meena Tarun Nagma Amit

Step 5: Gausiya Pradeep Sanjay Meena Nagma Tarun Amit

Step 5 is the final step because Tarun and Amit got their correct position by default and in the case of default we don't count that step. Hence the total number of steps will be required to complete the arrangement is 5.

Sol 2:

Input: Tarun Meena Nagma Amit Gausiya Sanjay Pradeep

Step 1: Gausiya Tarun Meena Nagma Amit Sanjay Pradeep

Step 2: Gausiya Pradeep Tarun Meena Nagma Amit Sanjay

Step 3: Gausiya Pradeep Sanjay Tarun Meena Nagma Amit

Step 4: Gausiya Pradeep Sanjay Meena Tarun Nagma Amit

Step 5: Gausiya Pradeep Sanjay Meena Nagma Tarun Amit

Here step 2 is 'Gausiya Pradeep Tarun Meena Nagma Amit Sanjay'.

More Practice Questions for you:

Type 1: Rearrangement based on Ordering (single and double shifting) Directions: According to the given arrangement answer the following guestions:

Input: Atul Suneel Swati Sandeep Sonika Manish Avantika Shahina

Step I: Avantika Atul Suneel Swati Sandeep Sonika Manish Shahina

Step II: Avanktika Sandeep Atul Suneel Swati Sonika Manish Shahina

Step III: Avantika Sandeep Shahina Atul Suneel Swati Sonika Manish

Step IV: Avantika Sandeep Shahina Manish Atul Suneel Swati Sonika

Step V: Avantika Sandeep Shahina Manish Sonika Atrul Suneel Swati

Step VI: Avantika Sandeep Shahina Manish Sonika Suneel Atul Swati

Step VII: Avantika Sandeep Shahina Manish Sonika Suneel Swati Atul

Q1. If step 4 of an input is 'Abhiraj, Neelam, Meena, Amit, Nikul, Suman, Ateej', what will be the input definitely?

A. 'Abhiraj, Neelam, Meena, Amit, Nikul, Suman, Ateej'

- B. 'Neelam, Abhiraj, Meena, Amit, Nikul, Suman, Ateej'
- C. 'Neelam, Abhiraj, Suman, Meena, Amit, Nikul, Ateej'

D. 'Ateej, Neelam, Meena, Amit, Nikul, Suman, Abhiraj'

E. Cannot be determined

Answer. E

Trick: If the input is not given we cannot determine the previous steps from the given step number or we cannot determine input from the given step number. Hence you should always remember this tip as you will definitely get one question of the same type and you don't need to think twice or spend time on it. Thus, in this type of question, your answer is "cannot be determined".

Directions: According to the given arrangement answer the following question:

Input: frozen 799 at the 977 827 banner candle 621 543 here 765 Step I: 799 frozen at 977 827 banner candle 621 543 here 765 the Step II: 977 799 frozen at 827 banner candle 621 543 765 the here Step III: 765 977 at 827 banner candle 621 543 the here frozen Step IV: 827 765 977 799 at banner 621 543 the here frozen candle Step V: 543 827 765 977 799 at 621 the here frozen candle banner Step VI: 621 543 827 765 977 799 the here frozen candle banner at

Q1. How many steps are required to complete this given arrangement?

Input: Water 569 325 996 better fairer 646 human 288 797 grace chance

A. 9

B. 6

- C. 7
- D. 8

Answer. B

According to the given input-output, we get a pattern of **double shifting**, one is of number and another is of word.

Now the pattern of shifting is: decreasing order of the sum of all the digits of the numbers (numbers are being arranged on the left side) and increasing order of the number of letters in the words (the words are being arranged on the right side).

We will do the same with the other given arrangement of question:

Input: Water 569 325 996 better fairer 646 human 288 797 grace chance

Trick: We will solve this arrangement by using the trick of double shifting. In this trick, we will show these numbers and words by digits and letters in the correct order.

Water 569 325 996 better fairer 646 human 288 797 grace chance

1 C F A 6 4 E 2 D B 3 5 Step 1: A C F 6 4 E 2 D B 3 51 Step 2: B A C F 6 4 E D 3 5 1 2 Step 3: C B A F 6 4 E D 5 1 2 3 Step 4: D C B A F 6 E 5 1 2 3 4

Step 5: E D C B A F 6 1 2 3 4 5

Step 6: F E D C B A 1 2 3 4 5 6

Hence the final step will be "325 646 288 569 797 996 Water Human Grace Fairer Chance Better" and we got this rearrangement in six steps. Therefore, option B is correct.

Q2. In step five which letter or number is 4th from the right corner in the given input?

Input: Water 569 325 996 better fairer 646 human 288 797 grace chance

A. human

B. water

C. better

D. fairer

Answer. Option A

According to the rearrangement step 5 is

Step 5: E D C B A F 6 1 2 3 4 5

4th from the right corner is '2' and according to the input, 2 is associated with "human".

Input:

Water 569 325 996 better fairer 646 human 288 797 grace chance

1 C F A 6 4 E 2 D B 3 5

Hence option A i.e. "human" is correct.

Q3. In which step will you get "325 646 288 569 797 996 Water Human Grace Fairer Chance Better" rearrangement for the given input?

Input: Water 569 325 996 better fairer 646 human 288 797 grace chance

A. 4

B. 2

C. 6

D. 5

Answer. C

"325 646 288 569 797 996 Water Human Grace Fairer Chance Better", this rearrangement is our final step, step 6.

Hence option C is correct.

Q4. What number/letter will be on the 5th position in step 3 from the left side of the given input?

Input: Water 569 325 996 better fairer 646 human 288 797 grace chance

A. human

B. water

C. better

D. fairer

Answer: Option C

According to the arrangement step 3 is,

Step 3: C B A F 6 4 E D 5 1 2 3

And number 6 is for the word "better".

Water 569 325 996 better fairer 646 human 288 797 grace chance

1 C F A 6 4 E 2 D B 3 5

Hence option C is correct.

Q5. If "Fairer" is replaced by "fair" then what will be the final rearrangement for the given input?

Input: Water 569 325 996 better fairer 646 human 288 797 grace chance

A. "325 646 288 569 797 996 Water Human Grace Fair Chance Better"
B. "325 646 288 569 797 996 Water Human Grace Fair Better Chance"
C. "325 646 288 569 797 996 Water Fair Grace Human Chance Better"
D. "325 646 288 569 797 996 Fair Water Human Grace Chance Better"
Answer. D
If "Fairer" would be replaced by "Fair" then fair would become the first word of the rearrangement to appear at the very first position.

Water 569 325 996 better fair 646 human 288 797 grace chance

2 C F A 6 1 E 3 D B 4 5

So, according to it, the rearrangement will be:

"325 646 288 569 797 996 Fair Water Human Grace Chance Better"

Type 2: Rearrangement based on mathematical operation

Q1. Input: 72 32 83 45 20 97 10

Step 1 9 5 2 9 2 7 1

Step 2 85 29 8 85 8 53 5

Step 3 4 2 8 4 8 8 5

Step 4 5 6 17 20 33 44 54

Step 5 1 2 13 16 29 40 50

Step 6 1 11 3 13 11 10 49

Answer:

In each step mathematical operation is used; as we can observe, in odd-numbered steps we have single-digit numbers, and in even-numbered steps, we have two-digit numbers. Now we will check out the mathematical operations being performed in the steps.

We have, Input: 72 32 83 45 20 97 10

In step 1, write the sum of digits and the final answer should be in one digit. Like, 72 = 7 + 2 = 9, 32 = 3 + 2 = 5 and so on.

In step 2, the operation is square of the given number and the addition of 4. Like, $(9)^2 + 4 = 85$, $(5)^2 + 4 = 29$, and so on.

In step 3, the final sum of digits in single-digit, just like step 1. Like, 85 = 8 + 5 = 13 = 1 + 3 = 4, 29 = 2 + 9 = 11 = 1 + 1 = 2, and so on.

In step 4, the squares of consecutive natural numbers are added to the numbers of step 3. Like, $4 + (1)^2 = 5$, $2 + (2)^2 = 6$, and so on.

In step 5, subtract 4 from step 4. Like 5 - 4 = 1, 6 - 4 = 2, and so on.

In step 6, subtract the immediate right number from its left number, this will continue till 40 but 50 doesn't have any number on its right, so we subtract 1 from 50.

So, in this way, this input-output will be solved.

Q2. Input: 52 74 64 62 46 82

Step 1: 41 23 37 26 32 31

Step 2: 16 21

Step 3: T X

Step 4: 480

Answer.

In step 1, divide the input by 2 and then arrange the numbers from highest to lowest.

In step 2, firstly write the sum of all the even digits and then the sum of all the odd digits.

In step 3, the sum of 1 and 6 is 7 and G is in the 7th position. But here is T, so the relation between T and G is T is the opposite of G. This same will follow with 21. The sum of 2 and 1 is 3, C is at the 3rd position and X is opposite of C or X is at the 3rd position from the reverse order.

In step 4, multiplication of T and X is present, the position of T is 20 and X is 24 and the multiplication of 20 and 24 is 480.

So, in this way, this input-output will be solved.

Practice Questions:

Q(1-5) Study the given information carefully and answer the given questions.

A number arrangement machine when given an input line of elements rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input: 30, 15, 29, 20, 6, 21 Step 1: 7, 30, 15, 29, 20, 21 Step 2: 34, 7, 30, 29, 20, 21 Step 3: 69, 34, 7, 30, 29, 21 Step 4: 100, 69, 39, 7, 30, 29

Step 5: 170, 100, 69, 39, 7, 30

Step 6: 216, 170, 100, 69, 39, 7, 30

Answer the following questions based on the following input:

Input: 9, 3, 16, 54, 15, 50

1. What is the third element from left of step 3?

- A. 22
- B. 16
- C. 9
- D. 4
- E. 51

2. Which is the second element from left in step 3?

- A. 4
- B. 3
- C. 54
- D. 80
- E. 22

3. How many elements are/are present between the second element from left and 50 of step 2?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

4. Which is the fifth element from right of step 5?

- A. 360
- B. 275
- C. 80
- D. 22
- E. 4

5. What is the sum of the first element and last element of step 4?

- A. 130
- B. 134

- C. 104
- D. 26
- E. 84

Solution:

1. (D)

Solution:

Rules:

1) In step 1 the smallest among all is incremented by 1 and then the sum is multiplied by 1 and the result is placed at extreme left.

2) In step 2 the smallest apart from the altered one is incremented by 2 and then the sum is multiplied by 2 and the result is placed at extreme left.

3) Similarly for step X the smallest apart from the altered one is incremented by X and then the sum is multiplied by X and the result is placed at extreme left.

4) Step is followed till all the numbers are not changed

Following the above rules, we can deduce the output from the given input:

Input: 9, 3, 16, 54, 15, 50 Step 1: 4, 9, 16, 54, 15, 50 Step 2: 22, 4, 16, 54, 15, 50 Step 3: 54, 22, 4, 16, 54, 50

Step 4: 80, 54, 22, 4, 54, 50

Step 5: 275, 80, 54, 22, 4, 54

Step 6:360, 275, 80, 54, 22, 4

Conclusion:

Step 3: 54, 22, 4, 16, 54, 50

Third element from left is 4

2. (E)

Ans: Step 3: 54, 22, 4, 16, 54, 50

Second element from left is 22

3. (D)

Ans: Step 2: 22, 4, 16, 54, 15, 50

3 elements are present between second element from left (4) and 50

4. (C)

Ans: Step 5: 275, 80, 54, 22, 4, 54

Fifth element from right is 80

5. (A)

Ans: Step 4: 80, 54, 22, 4, 54, 50

First element = 80

Last element = 50

Sum: 80 + 50 = 130

SERIES AND ANALOGY

I'm here with a very scoring topic of reasoning '**Series**'. This is a very easy and simple topic but it contains 3-5 marks weightage in the **Banking Examinations**. So, let's start with introductions and various types of questions which were frequently asked in previous years' examinations.

<u>Series</u>

A series is a continuous sequence of numbers, letters, or words that are obtained by some particular previously defined rule. Applying that predefined rule, it is possible to find out the next term of the series.

Types of series that come in Banking Exams are:

- 1. Letter series
- 2. Number series
- 3. Mixed series
- 4. Analogies

These types can be further divided into: wrong letter series, repeated series, wrong number series and so on. But now the difficulty level has increased. So, we will have questions which will deal with both number and alphabet related problems and classification or odd one out type problems.

So, let's start with Letter series

Letter Series:

In letter series, the letters follow a definite order. The given series of letters can be in natural order or in reverse order or combination of both. The letters may be skipped or repeated or consecutive. Let's understand with help of an example:

Q. 1. Which of the given options will complete the given series?

AYBZC, DWEXF, GUHVI, JSKTK, ?

- A. MQORN
- B. MQNRO

C. NQMOR

D. QMONR

E. None of these

Solution: Option B

Here, firstly we have to look at the pattern in a given series.

1st letter of each term:

A (+3) = D (+3) = G (+3) = J (+3) = **M**

2nd letter:

Y (-2) = W (-2) = U (-2) = S (-2) = **Q**

3rd letter:

B (+3) = E (+3) = H (+3) = K (+3) = N

We don't need to find out further because by these three letters we got our answer. There is only one option that has MQN letters in the first three places. So, option B (MQNRO) is the correct answer.

Note: Don't solve further if you get your answer. Try to save as much time as you can.

Wrong Letter Series:

In this type of series, the candidates are not required to find the letter or group of letters which will complete the given series but, they have to identify the letter or group of letters which is wrong or misfit in the given series.

Q. 2. Which letter(s) is wrong or is misfit in the series?

XW, DC, CB, NM, PQ

- A. NM
- B. CB
- C. PQ
- D. XW
- E. None of these

Solution. Option C

Here except PQ each element is in reverse series. Therefore, PQ is wrong. It should be QP, not PQ.

Repeated Series:

In this type of series, small groups of alphabets are used to make a set which is repeated. The candidate has to find the set of letters which will fit the blanks left in the given series in such a manner that one set of the series is further repeated in the same manner.

Q. 3. Which of the following groups of letters will complete the given series?

- c_bbb_ _ abbbb_ abbb_
- A. aabcb
- B. abccb
- C. abacb
- D. baebb
- E. None of these
- Solution. Option B

Here the series is cabbbb/cabbbb/cabbbb. Thus, the pattern 'cabbbb' is repeated.

Number Series:

In this type of series, we have a set of given numbers in a series that are related to one another in a particular pattern or manner.

The relationship between the numbers may be:

1. Consecutive odd/even/prime numbers.

2. Squares/cubes of some numbers with/without variation of addition or subtraction of some number.

- 3. Sum/product/difference of preceding/succeeding numbers.
- 4. Addition/subtraction/multiplication/division by some number.

And many more combinations of the relationships given above.

Let's understand by example:

- Q. 4. Complete the given series: 2, 14, 98, 686, ...?
- A. 1976
- B. 2548
- C. 980
- D. 4802
- E. None of these

Solution. Option D

We can clearly identify the pattern of multiplication here. The numbers are multiplied by 7 to obtain the next numbers.

2 × 7 = 14

14 × 7 = 98

- 98 × 7 = 686
- 686 × 7 = 4802
- So, option D is correct.

Wrong Number Series:

It is the same as the wrong letter series. We have to identify the number which is disturbing the sequential pattern of that series and does not fit in it.

Q. 5. In the given series find the number which is wrong.

- 121, 143, 165, 186, 209
- A. 143
- B. 165
- C. 186
- D. 209
- E. None of these

Solution. Option C

It can be observed that each term in this series is obtained by adding number 22 to the preceding term.

121 + 22 = 143 143 + 22 = 165 165 + 22 = 187

So, 186 is wrong and must be replaced by 187.

Mixed Series:

Mixed series comprises the combination of letters and numbers. In this type of series, the letters and numbers may have a common sequential pattern or may have separate sequential patterns.

Q. 6. What should come in the place of the question mark in the following letter - number combination?

F6, H8, J10, L12, ...?

A. N15

B. O14

C. N14

D. O13

E. None of these

Solution. Option C

Here, the letters are moving two steps forward with the number or we can also say that the number indicates the position of the letter in the alphabet series.

F6 (+2) = H8 (+2) = J10 (+2) = L12 (+2) = N14

Hence option C is correct.

Analogy:

In Analogy, the relationship between two given words/letters/numbers is established and then applied to the other words/letters/numbers. The type of relationship may vary, so while

attempting such questions, the first step is to identify the type of relationship. You will understand this more by following examples:

Directions (7-9): In each of the following questions find out the alternative which will replace the question mark.

Q. 7. Peacock : India :: Bear : ?

A. Australia

B. America

C. Russia

D. China

E. None of these

Solution. Option C

As peacock is the national bird of our country India, similarly Bear is the national animal of Russia.

So, this is the relationship/pattern between these four words.

Q. 8. GFC : CFG :: RPJ : ?

A. JRP

B. JPR

C. PJR

D. RJP

E. None of these

Solution. Option B

We can easily observe that letters of the first term are reversed in the second. Similarly we will do with third the term to obtain the fourth term; fourth term will be the reverse of third - RPJ i.e. JPR.

Hence, option B is correct here.

Q. 9. 411 : 441 : : 755 : ?

A. 705

B. 775

C. 635

D. 665

E. None of these

Solution. Option B

Here, in the first number the second digit is repeated and in the second number the first digit is repeated. So, we follow this for the third and fourth number.

Hence our fourth number will be 775 (7 i.e. first digit here will be repeated).

Odd One Out:

In this type of classification, five words/terms/numbers are given out of which four are almost the same in manner or meaning and only one word/term/number is different from the common four. One has to find out the element which is different from the rest.

Examples:

In the following questions spot the Odd One Out.

Q. 10.

A. Mettur

B. Aswan

C. Hirakund

D. Sutlej

E. Pong

Answer. Option D

Here, Mettur, Aswan, Hirakund and Pong are dams whereas Sutlej is a river. So, Sutlej is odd here.

(This is an example of word based odd one out.)

Q. 11.

A. 9 : 80

B. 1 : 0

C. 6 : 35

D. 12 : 143

E. 10 : 91

Answer: Option E

If you observe keenly then you will get to know that there is a pattern of the second number being one less than the square of the first number here. When you see A, B, C and D, they all are following this pattern but E is not following; it should be 99 here. Hence, option E is odd.

Q. 12.

A. BCDEI

B. PQRSW

C. LMNOS

D. TUVWA

E. HIKLO

Answer: Option E

In all other groups except E, the first four letters are consecutive and there is a gap of 3 letters between the last two letters. Hence here E is odd.

Number and Alphabet Problems or Letter and Number Arrangement:

Number and Alphabet problems are fun to attempt. They are based on given number sequences, mathematical calculations or on alphabetical series in natural as well as in reverse order.

Natural 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

Reverse 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

Note: The series starts from A on reaching Z and from Z on reaching A.

Examples:

Q. 13. If the first ten letters of the following alphabet series are written in the reverse order, which of the following letters will be the seventh to the left of the tenth letter from the right end?

A. H

B. C

C. I

D. B

E. None of these

Answer. Option B

The new series after reversing the first ten letters will be

JIHGFED**C**BAKUMN<u>O</u>PORSTUVWXYZ

Counting 10th letter from right end (from Z) = O

And 7th letter to the left of 'O' = C

So, 'C' is the required answer here.

Q. 14. How many such 7's are there in the following number sequence which are immediately followed by 4 but not immediately preceded by 8?

 $5\ 4\ 7\ 8\ 6\ 7\ 4\ 3\ 8\ 7\ 5\ 7\ 4\ 8\ 7\ 4\ 1\ 2\ 7\ 4\ 5\ 7\ 9\ 4$

A. Two

B. Three

C. Four

D. Five

E. None of these

Answer. Option B

Number of 7's which are immediately followed by 4 but not immediately preceded by 8 are:

547867438757487412745794 = 3

So, there are 3 such 7's; it means option B is correct.

Question on Letter Arrangement:

Q. 15. From the word CATCHMENTAREA, how many independent meaningful words can be made without changing the order of the letters and using each letter only once?

A. 1

B. 2

C. 3

D. 4

E. More than 4

Answer. Option E

There are 5 words that can be formed according to this question. In those words neither the order of letters is changed nor is the letter repeated. And they are: Cat, At, Men, Tar, Are. So, option E is correct.

Question on Number Arrangement:

Directions (16-18): Following questions are based on the five three digit numbers given below:

756 421 843 615 597

Q. 16. What will be the product of the first and the third digits of the third highest number?

A. 40

B. 30

- C. 35
- D. 24
- E. 32

Answer. Option B

Here the third highest number is 615 and the product of its first and third digit is $6 \times 5 = 30$. So, option B is correct.

Q. 17. If the position of the first and the third digits of each of the numbers are interchanged, which of the following will be the sum of the first and the second digits of the lowest number?

A. 3

B. 7

D. 8

E. 2

Answer. Option A

According to question, the new numbers will be -

756 = 657

421 = 124

843 = 348

615 = 516

597 = 795

Now, the lowest number is 124

And sum of first and second digit is 1 + 2 = 3

Hence, Option A is correct here.

Q. 18. If 3 is subtracted from the first digit in each number and 1 is added to the third digit in each number and then if the position of the first and second digits in each number are interchanged, then which of the following numbers will be the second lowest?

A. 615

- B. 421
- C. 756
- D. 597
- E. 843

Answer. Option B

According to the question firstly we will subtract 3 from first digit and add 1 to the third digit and then will interchange the position of first and second digit in each number, then we will have new numbers:

756 becomes 457 and then 547

421 becomes 122 and then 212

843 becomes 544 and then 454

615 becomes 316 and then 136

597 becomes 298 and then 928

So, according to the new number series, the second lowest number is 212 i.e 421. Thus option B is correct here.

That is all you need to know from this topic. We have covered all types of questions that you might face in any **Banking Examination**. Keep practicing and you will excel in your exam.

Practice Questions:

Q(1-3) Study the following series and answer the questions given below.

A£BF1\$G3CH5 Σ I μ KJE76ZX β U9 α WD2Y4 π 8P?

1. If all the numbers in the above arrangement are dropped, then which of the following will be the tenth from the right end?

- Α. Σ
- B. U
- C. β
- D. X
- E. None of these

2. How many such alphabets are there in the above arrangement each of which are immediately preceded by a symbol and followed by a number?

- A. Two
- B. Three
- C. Four
- D. More than four
- E. None of these

3. Which of the following is fifth to the right of the eleventh to the left of the eighteenth element from the right end of the above arrangement?

- A. \$
- В. Х
- C. 5
- D. E
- E. None of these

Q(4-5) Answer the following questions based on the given series.

4. If all the vowels in the given series are replaced by their respective positional values and all the consonants are replaced by the letter succeeding them in english alphabetical series, then which of the following will be fourth to the right of seventh element from the right end?

- A. 9
- B. 15
- C. E
- D. S
- E. K

5. Which of the following is sixth to the left of the third letter to the right of tenth letter from the right end?

- A. C
- B. X
- С. В
- D. Q
- E. R

Solutions:

1. (D)

Ans: Given series:

 $A \pounds B F 1 \$ G 3 C H 5 \Sigma I \mu K J E 7 6 Z X \beta U 9 \alpha W D 2 Y 4 \pi 8 P \Omega$

- If all the numbers are dropped: A \pounds B F \Im G C H Σ I μ K J E Z X β U α W D Y π P Ω
- 10th element from the right end is letter **X**

2. (A)

Ans: Alphabets which are immediately preceded by a symbol and followed by a number:

A£BF1**\$G3**CH5ΣIµKJE76ZX**βU9**αWD2Y4π8PΩ

Hence, there are 2 alphabets which is immediately preceded by symbol and followed by a number: **\$ G** 3, β **U** 9

3. (C)

Ans: Eighteenth element from the right end: E

Eleventh element to the left of E: \$

4. (A)

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

After replacing the vowels with their positional values and consonants with letters succeeding them in english alphabetical series, we get:

1 T E G H I K L M A Y D W C O N R X 5 S U Z 21 9 15 Q

5. (C)

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

10th letter from right end: Q

3rd letter to the right of Q: R

6th letter to the left of R: B

DIRECTION SENSE

This is an important and scoring topic but the complexity of questions in reasoning ability for the **Banking Exam** is increasing tremendously. So, cracking questions of direction can be an easy task if one gets into the habit of continuous practice of the latest pattern of questions. Only then you can get a good score.

Direction Sense

In this topic, the directions in question need to be perceived. Such questions are based on the direction chart. Thus, we should have good knowledge of all eight directions with left/right. The sense of the different directions is guided by the left and right turns or angular turns.



Direction Sense based questions can be of two types:

1. Point Based: Here, there are no movements and turns. Only respective direction and distance between two or more status points are given.

Eg: Point A is 2 m south of point B. Point B is 2 m east of point C, etc.



2. Turns Based: Here, there are movements and turns included.

Now, turns can be given in any of the following ways:

• By directly mentioning direction (North, South, East, West, etc)

Eg: A person moves 5 m towards east from point A to reach point B. From point B, he moves 5 m in the south and reaches point C.



• By mentioning Left/Right Turn

Eg: A person moves from point A, walks 5 m towards east and reaches point B. He takes a right turn and walks 5 m to reach point C.



Note: If the angle of the turn is not mentioned, then we assume the turn to be a 90 degree turn.

But in some questions, the angles of the turns are also mentioned.

Eg: A person starts from point A, walks 5 m towards east to reach point B. He takes a 45 degree right turn and walks 5 m to reach point C.



Here, some points are given which will help you improve your exam preparation:

- 1. Read all the information carefully and draw the direction diagram step by step.
- 2. At 45°, angle will be immediately next left or right according to the question and here an 8-directional chart will be used.
- 3. At 90°, a 4-directional chart will be used (four main directions- North, East, South, and West).
- 4. At 180°, the direction will be opposite and at 360°, the direction will be the same.

- 5. North, East, South, and West are straight directions. You will get these terms in the questions of the latest pattern.
- 6. North-West, North-East, South-West, and South-East are coupled directions.

DO REMEMBER: <u>Be careful while drawing left and right turns or angular turns; for</u> <u>achieving mastery in it practice more and more</u>.

Direction sense questions on the latest pattern are explained below that have come in previous **Banking Examinations**. By solving each question, you will have complete and good command over this topic and ensure your 3-5 marks from this topic in the Banking Exam.

Example:

Direction (1-2): Study the following information carefully and answer the questions given below:

Point E is 15m north of Point D. Point F is 20m north of Point C. Point A is 35m east of Point F. Point P is 25m south of Point A. Point E is 20m west of Point P. **[SBI Clerk Pre 2020 Memory Based Paper]**

Q1. What is the direction of point F with respect to point P?

- A. North-West
- B. North-East
- C. South-West
- D. South-East
- E. North

Answer:

First we will try to draw an accurate diagram. We need to look at the relative distances between two points. We will do this step by step as follows:

E is 15m north of Point D - Point E is 20m west of Point P - Point P is 25m south of Point A - Point A is 35m east of Point F - Point F is 20m north of Point C

In this way, we will get the following diagram:



Here, we can see that point F is in the north west direction with respect to point P.

Thus, the correct answer will be Option A.

Q2. If point X is 20m south of point C, then what is the total distance between point X and point D?

- A. 20 m
- B. 15 m
- C. 30 m
- D. 10 m
- E. 25 m

Answer:

According to the question, let us mark a point X that is 20 m south of C.



We can see that point X and point D will be on the same line.

Since, FO = AP = 20 m; OX = ED = 20 m

Now, XD = FA - EP = 35 m - 20 m = 15 m

Thus, Option B is the correct answer.

Q3. If A is 3 m west of B and B is 4 m north of C, then what is the distance between A and C?

- A. 10 m
- B. 5 m
- C. 3 m
- D. 4 m
- E. 6 m

Answer:

We get the following diagram based on the given information:



Here, we see that AB = 3 m and BC = 4 m

We need to find AC.

So, we will apply Pythagoras Theorem ($Base^2 + Perpendicular^2 = Hypotenuse^2$) on triangle ABC,

 $AC^2 = AB^2 + BC^2$

Thus, AC = 5 m

Thus, Option B is correct.

Q4. A person is walking in the East direction. He turns 45[°] left and then 90[°] right. In which direction does he face now?

- A. North
- B. North West
- C. North East
- D. West
- E. South East

Answer: Option E



When a person takes 45° left turn, he escapes from the straight direction to the coupled direction that will be North-East.

Then, 90° right turn will also follow a coupled direction from North-East to South-East.

Hence option E is the correct answer.

Directions (5-7): Read the information carefully and answer the given questions.

Point E is 16 m to the south of point C. Point F is 4m to the west of point E. Point H is 5m to the south of point F. Point J is 12m to the east of point H. Point Y is to the east of point F. A person walks 15m from point Y towards west, reaches point Z, takes a left turn, and reaches point J.

- 5. What is the difference between the distance between points Z, J and points Y, F?
- A. 26m
- B. 22m
- C. 12m
- D. 8m
- E. None of these



Firstly, we will find the distance between Z and J, and Y and F.

So, according to direction diagram of this question, distance between Z and J = 5 m, and

Distance between Y and F = FZ + ZY, here FZ = HJ = 12 m (as FZJH is a rectangle and opposite sides of a rectangle are equal).

Therefore, YF = 12 + 15 = 27 m

Thus, required difference = YF - ZJ = 27 - 5 = 22 m

Hence, Option B is correct.

6. If a person walks 20 m towards north from point Z, takes a left turn and walks 8 m, how far will he be from point C?

- A. 2 m
- B. 6 m
- C. 3 m
- D. 4 m
- E. 5 m

Ans. Option D



Here, the distance between C and his current position will be: 20 m – 16 m = 4 m $\,$

This can be seen clearly in the figure.

Hence option D (4 m) is correct.

- 7. In which direction is point Z with respect to point H?
- A. North-West
- B. North-East
- C. South-west
- D. East
- E. South-East

Ans. Option B



As you can see in the direction diagram that H and Z have diagonal relations. Z is on the right side of H diagonally. And the right side in the upward diagonal direction will be North-East (NE).

Directions (8-9): P, Q, R, and S are standing on four corners of a square piece of plot as shown in the given figure. They start moving, and the movements are explained in each of the questions. Read the question and select the right alternative.



8. Q travelled straight to R, a distance of 10 m. He turned right and walked 7 m towards S, again he turned right and walked 8 m, and then finally turned right and walked 7 m. How far is he from his original position?

A. 7 m

- B. 8 m
- C. 2 m

D. 3 m

E. None of these

Ans. Option C

According to the question:



QR = 10 m RA = 7 m AB = 8 m BQ' = 8 m Q'Q will be the required distance in this question: Q'Q = QR - Q'R = 10 - 8 = 2Q'Q = 2 m (Option C)

9. From the original position, S starts crossing the field diagonally. After walking half the distance he turns right; walks some distance and turns left. Which direction is S facing now?

- A. South-East
- B. North-West
- C. South-West
- D. North
- E. None of these

Ans. Option B

According to question



As S starts crossing the field diagonally, so S is in NW direction when he crosses the field half diagonally, then he turns right, it means he turns towards NE. Then he turns left while traveling towards NE. So, now NW will be on the left and SE will be on the right.

Hence, NW is the required direction.

<u>NOTE: In this question, we are traveling along a diagonal that's why a coupled</u> <u>direction chart will be used and we have to think left/right according to the coupled</u> <u>direction. We won't include a straight direction here.</u>

Now, you will be able to solve any Direction Sense that comes in the exam. All the questions will be from the types discussed above.

Practice Questions:

Q(1-2) Study the following information to answer the given questions:

A girl starts walking from point A and walks 10 km towards east and stops at point B. Now, she turns 135° to her left and walks 10 km to reach a point C. Now, she takes 45° left turn and walks 10 km to reach a point D. Finally, she turns 135° to her left and walks 10 km to reach a point E.

1. What is the direction in which the girl is facing at point B?

- A. West
- B. East
- C. North
- D. South
- E. None of these

- 2. In which direction is point C with respect to point B?
 - A. North-East
 - B. South-East
 - C. East
 - D. West
 - E. North-West

Q(3-5) Read the given information carefully and answer the following questions:

One day Ramesh goes for a medical checkup. He starts from his house which is east facing and walks for 10 metres. He reaches a chemist shop from where he takes a right turn and walks 10 metres forward to reach Raghu's house. Raghu decides to join Ramesh. They come out of Raghu's house which is west facing and walk for 10 metres. They reach their school from where they take a right turn and walk for 5 metres to reach the park. From there, they take a left turn and walk for another 5 metres to reach the stationary shop. From the shop, they turn 90° towards their right and walk 10 metres forward to reach the bus stop. They again turn 90° towards their right and walk for 15 metres to finally reach the hospital.

3. In which direction is Ramesh's end point located with respect to Raghu's end point?

- A. West
- B. North
- C. North-West
- D. South-West
- E. None of these

4. What is the distance between the hospital and Raghu's house?

- A. 10 metres
- B. 5 metres
- C. 20 metres
- D. 15 metres
- E. None of these

5. What is the distance between the stationary shop and the school?

- A. $5\sqrt{2}$ metres
- B. $10\sqrt{2}$ metres
- C. 10 metres
- D. 5 metres
- E. 25 metres

Solutions:

1. (B)

Ans: The movements of the girl is shown in the diagram given below:



Thus, the girl is facing towards the East direction when she is at point B.

2. (E)

Ans: Thus, point C is in the North-West direction with respect to B.

3. (E)

Ans: The movements of Ramesh and Raghu are as shown in the figure below:



Ramesh's and Raghu's end points are the same, i.e. Hospital. Hence, none of the given options are correct.

4. (D)

Ans:



Distance between hospital and Raghu's house = 10 metres + 5 metres = 15 metres.

5. (A)

Ans:



Distance between stationary shop and school = $\sqrt{(5^2 + 5^2)}$ metres {by Pythagoras Theorem}

= $5\sqrt{2}$ metres

BASIC AND CODED INEQUALITY

This is the most scoring topic in **Banking Examinations** because 3-5 questions definitely come from this topic, and you can easily and quickly come up with 100% accurate answers and secure your 3-5 marks in the exam in no time. But if the concepts are not clear, you might easily get confused and mark the wrong answer. So, to eliminate every chance of confusion, let us start with the learning of Inequality step by step.

Inequality

Inequality means difference in size, degree, value, etc. (Not Equal). In Logical Reasoning, we use inequality to show comparison / relation between two or more entities / variables using signs like: greater than (>), less than (<), equal to (=), greater than or equal to (\geq), less than or equal to (\leq), not equal to (\neq).

Eg: A < B, $B \le C$, C = D, D > E

Since we have some common variable in these inequalities, so we can combine them and write as:

 $A < B \le C = D > E$

From the above given comparison, we might or might not get a relation between every single variable, like, we can clearly conclude that:

A < C (because A < B and $B \le C$)

A < D (because $A < B \le C = D$)

So, the relation between A and C, and A and D can clearly be seen.

But we cannot find any definite relation between A and E (because A < B \leq C = D > E; so A < D > E)

You just need to understand this relation, whether it definitely exists or not. And just with this understanding, you can solve any question of Inequality.

Now let us have a look at the types of questions that are asked from this topic:

Example 1. Statements: L > N = M; X > Y < J = Q < M; $T < Q \ge N > S$

Conclusions: I. N > T

II. J > MIII. J = M

Based on the information given in the statement, you need to find which of the conclusion(s) follow(s) follows. Mark your answer from the given alternatives.

- A. Either II or II follows
- B. Only I follows
- C. I and Either II or III follows
- D. Neither II nor III follows
- E. None follows

Answer:

Given statement: L > N = M; X > Y < J = Q < M; $T < Q \ge N > S$

Firstly, we will combine these statements:

 $L > N = M > Q = J > Y < X; T < Q \ge N > S$

(M is common in the first and second statement so we write it together and make one statement)

Now, we will see which conclusion follows from these statements:

Conclusions:

I. N > T: We can see that N and T are not directly related but they are related through Q (T < $Q \ge N$). N is either less than or equal to Q ($Q \ge N$) and T is less than Q (T < Q). So, we do not get any definite relation between N and T here. Hence conclusions N > T does not follow.

II. J > M: We can see that J and M are related through Q (M > Q = J). Here, M is greater than Q (M > Q) and Q is equal to J (Q = J). So, we can conclude that M is greater than J (M > J). The given conclusion (J > M or M < J) is contrary to it. Hence, it does not follow.

III. J = M: We already saw in the previous conclusion that M is greater than J (M > J). Thus, this conclusion (J = M) does not follow.

Therefore, the correct answer will be Option E, i.e. None follows.

It is very much possible to get confused with the greater than (>) and less than (<) signs while solving problems. You need to carefully analyse the statements and see if the given conclusion complies with the statement completely or not.
Example 2: Statements: $T < Q \ge N = S$; S > A; A > B < C

Conclusions:

- I. Q > S
- II. Q = S
- III. Q > A
 - A. Only conclusion I follows
 - B. Conclusion III and either conclusion I or II follow
 - C. Both conclusions I and II follow
 - D. Only conclusion III and I follow
 - E. None follows

Answer:

Firstly we will combine the given statements:

 $\mathsf{T} < \mathsf{Q} \ge \mathsf{N} = \mathsf{S} > \mathsf{A} > \mathsf{B} < \mathsf{C}$

Conclusions:

- I. Q > S: We can see that Q is either greater than or equal to N and N is equal to S ($Q \ge N = S$). Thus, Q is either greater than or equal to S
- II. Q = S: The explanation in the above conclusion says that Q is either greater than or equal to S.
- III. Q > A: We see that $Q \ge S$ and S is definitely greater than A (S > A). Thus Q is definitely greater than A (Q > A). So, this conclusion is true.

So, here, conclusion III and either conclusion I or II follow.

Thus Option B is the correct answer.

Some important points for either case:

- 1. Conclusion elements should be the same.
- 2. Individually the conclusion should be wrong but their mixed up conclusion will be correct.
- 3. Generally you would get this complimentary sign group in 'either' and 'or' case.
 - >, =
 - <, =
 - ≥, <
 - ≤, >

4. Elements of the conclusion should be the same, order can be different.

Like, N < P and P = N

NOTE: If the mix up of two conclusions is correct then they will be wrong individually. For saving your precious time in exam check their mix up first and if it is correct then it is an 'either or' case.

So far, we have learnt Basic Inequality. But Inequality questions are also asked in coded form. Let us now learn coded inequality with the help of some questions.

Example 3.

Directions (Qs 1-4): In the following questions, the symbols @, #, \$, & and % are used with different meanings as follows. Choose the correct alternative for each question:

'P @ Q' means 'P is not smaller than Q'

'P # Q' means 'P is not greater than Q'

'P \$ Q' means 'P is neither greater than nor equal to 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'

1. Statements: V \$ W, W @ T, T # H

Conclusions: I) V & T II) H % W

- A. Only I follows
- B. Only II follows
- C. Either I or II follows
- D. Neither I nor II follows
- E. Both I and II follow

Answer:

We have,

 $P @ Q means P \ge Q$

P # Q means $P \le Q$

P Q means P < Q

P & Q means P > Q

Statements: V < W, $W \ge T$, $T \le H$

Combining notation of statement: $V < W \ge T \le H$

Here conclusions are:

I) V > T: False (V < W \ge T; no definite relation can be established between V and T)

II) H = W: False (W \ge T \le H; no definite relation can be established between H and W)

Hence, the answer will be Neither I nor II follows.

2. Statements: H & M, M @ E, E \$ C

Conclusions: I) C & M II) H & E

- A. Only I follows
- B. Only II follows
- C. Both I and II follow
- D. Either I or II follows
- E. Neither I nor II follows

Answer:

 $P @ Q means P \ge Q$

- P # Q means $P \le Q$
- P \$ Q means P < Q
- P & Q means P > Q
- P % Q means P = Q
- Combined notation: $H > M \ge E < C$

And conclusions are:

I. C > M: False (M \ge E < C; no definite relation can be established between C and M)

II. H > E: True (H > M \ge E; thus H is definitely greater than E)

Thus, Only conclusion II follows.

3. Statements: N @ J, J % R, R & H

Conclusions: I) R # N II) N & H

- A. Only I follows
- B. Only II follows
- C. Both I and II follow
- D. Either I or II follows
- E. Neither I nor II follows

Answer:

 $P @ Q means P \ge Q$

- P # Q means $P \le Q$
- P \$ Q means P < Q
- P & Q means P > Q
- P % Q means P = Q
- Statements: $N \ge J$, J = R, R > H
- On combining, we get: $N \ge J = R > H$

Conclusion:

- I) $R \le N$: True ($N \ge J = R$ or $J = R \le N$)
- II) N > H: True (N \ge J = R > H; thus N is definitely greater than H)

4. Statements: L @ K, K & A, A \$ W

Conclusions: I) W \$ L II) L # W

- A. Only I follows
- B. Only II follows
- C. Both I and II follow
- D. Either I or II follows
- E. Neither I nor II follows

Answer:

P @ Q means P ≥ Q P # Q means P ≤ Q P \$ Q means P < Q P & Q means P > Q P % Q means P = Q Statements: L ≥ K, K > A, A < W On combining, we get: L ≥ K > A < W Conclusions: I) W < L: False (L ≥ K > A < W; thus there is no definite relation between W and L)

II) $L \le W$: False ($L \ge K > A < W$; thus there is no definite relation between W and L)

That is all for this topic. We are providing below some questions for your practice. Go through each of them and first try to solve them yourself following all the directions explained above.

Practice Questions:

Q(1-5) In the following questions assuming the given statements to be True, find which of the conclusion(s) among given conclusions is/are true and then give your answers accordingly.

1. **Statements:** A > B < C; A = P < Q < R

Conclusions:

I. P > B

II. A < R

- A. Only I is true
- B. Only II is true
- C. Both I and I are true
- D. Neither I nor II is true
- E. Either I or II is true

2. **Statements:** X < Y > Z; Y = K < L < M

Conclusions:

I. X < M

II. Z > L

- A. Only I is true
- B. Only II is true
- C. Either I or II is true
- D. Neither I nor II is true
- E. Both I and II are true

3. Statements: P = Q > R < S; S < U > V

Conclusions:

I. Q < U

II. R < U

- A. Only I is true
- B. Only II is true
- C. Both I and II are true
- D. Either I or II is true
- E. Neither I nor II is true

4. **Statements:** D < E < F = G; P > Q > R < T; D = M > N < O; G = T

Conclusions:

I. D < T

II. O > E

- F. Only I is true
- G. Only II is true
- H. Both I and II are true
- I. Either I or II is true
- J. Neither I nor II is true

5. **Statements:** H < G < J = U; G > O > P; L = H > X > Y

Conclusions:

I. Y < G

II. J > P

- A. Only I is true
- B. Only II is true
- C. Neither I nor II is true
- D. Either I or II is true
- E. Both I and II are true

Solutions:

1. (C) Ans: **Given:** A > B < C; A = P < Q < R

On combining, we get: R > Q > P = A > B < C

Conclusions:

I. P > B - **True** (P = A > B; thus P > B)

II. A < R - **True** (R > Q > P = A; thus A < R)

2. (A) Ans:

Given: X < Y > Z; Y = K < L < M

On combining, we get: X < Y = K < L < M; Y > Z

Conclusions:

I. X < M - **True** (X < Y = K < L < M; thus X < M)

II. Z > L - False (no definite relation can be determined between Z and L)

3. (B) Ans: Given: P = Q > R < S; S < U > V

On combining, we get: P = Q > R < S < U < V

Conclusions:

I. Q < U - **False** (Q > R < S < U; thus no definite relation can be established between Q and U)

II. R < U - **True** (R < S < U; thus R < U)

4. (A) Ans: Statements: D < E < F = G; P > Q > R < T; D = M > N < O; G = T

On combining, we get:

O > N < M = D < E < F = G = T > R > Q > P

Conclusions:

I. D < T: **True** (D < E < F = G = T; thus D < T)

II. O > E: **False** (O > N < M = D < E; thus no clear relation can be established between O and E)

5. (E) Ans:

Statements: H < G < J = U; G > O > P; L = H > X > Y

On combining, we get:

Y < X < H = L < G > O > P; G < J

Conclusions:

I. Y < G: **True** (Y < X < H = L < G; thus Y < G)

II. J > P: **True** (G < J; G > O > P; thus J > G > P; thus J > P)

LINEAR ARRANGEMENT

Generally, the questions from this section are lengthy and consume a lot of time. All you need to do is learn the basics thoroughly and practice more and more questions to ace in this topic.

We will start with a brief introduction of the seating arrangement and then will continue with "<u>Linear arrangement</u>", which is a part of the seating arrangement.

Seating Arrangement

Seating arrangement is one of the easiest topics in reasoning. So, mainly we have 2 types of seating arrangement problems:

- 1. Linear Arrangement
- 2. Circular Arrangement (Or square, rectangular, triangular, etc)

Linear arrangements have further bifurcation (three parts). We will discuss 3 types of linear arrangements with the previous year's questions in this Study Material.



Rules for solving arrangement:

- 1. Left and Right will be taken according to the given direction of the person concerned (i.e. whether he is facing North/South).
- 2. For North facing person, his left and right will be the same as ours. But for South facing person, it would be the opposite, our left will become his right and our right will become his left.

- 3. If direction (North/South) is not given in the question, then we will assume all persons to be facing in the north direction.
- 4. Immediate left/right means just before/after the person.

Now, we will understand each type with the help of an example.

1. Single Row Arrangement

People sitting in a single row/column

(It can be in one direction (Either North or South) or both)

Direction: Study the following information carefully and answer the questions given below:

Six friends A, B, C, D, E, and F are going to watch a movie and they sit in the first row facing North. E is not sitting at any of the two ends. D and F are sitting adjacent to each other, while none of them are sitting at the ends of the line. E is not adjacent to F. E is sitting second to the right of C. A is between C and E.

Solving the puzzle:

We will first decode the puzzle statement by statement. We will jot down all the information provided in the puzzle in such a sequence that we get the complete seating arrangement by the end of it.

1. All of them are facing North.

2. D and F are sitting adjacent to each other, while none of them are sitting at the ends of the line.

3. E is not sitting at any of the two ends.

(We can conclude that now either C, B or A can be at the two ends of the line)

4. E is sitting second to the right of C.

5. A is between C and E. (This implies that A cannot be at any end)

(Now, E sits second to the right of C. This is only possible when C sits at the extreme left end. Thus, B will sit at the extreme right end)

6. E is not adjacent to F.

(This implies that F sits adjacent to B and D sits adjacent to E. Since we already know that D and F sit adjacent to each other)

So, the final arrangement will be as shown below:

Now, let us deal with some questions from this puzzle.

1. What is the position of E with respect to B?

A. Immediate adjacent

B. Second to the right

C. Third left

D. Sixth to the left

E. Cannot be determined

Answer: Option C

Hence, Third Left is correct.

2. Which of the following person is sitting between the persons who are third from the left and B?

A. C

B. A

C. D

D. B

E. None of these

Answer: Option C

Third person from the left is E.

D and F are sitting between E and B.

Since only D is given in the option, thus Option C will be correct.

3. Which of the following pairs sit at extreme ends?

A. E and D

B. F and C

C. E and D

D. B and C

E. A and C

Answer: Option D

As C and B are sitting at extreme ends one is on the left side and the other is on the right side respectively.

4. If E is related to D, and F is related to B then in the same pattern C is related to whom among the following?

A. E

B. D

C. H

D. A

E. F

Ans. Option

E sits on the immediate left of D; F sits on the immediate left of B

Similarly, C sits on the immediate left of A.

Direction: Read the given information carefully and answer the following questions.

Nine people – P, Q, R, S, T, U, V, W and X are sitting in a straight line. Some of them are facing north while some of them are facing south. All the given information is not necessarily in the same order. Q sits second to the left of V. X does not face south. Two people sit between R and S. Persons sitting at extreme ends face opposite directions. Immediate neighbors of U face opposite directions. W and T face opposite directions. R sits third to the right of P. W is an immediate neighbor of T. U sits second to the right of S. Both U and T face the same direction. Immediate neighbors of S face in the direction opposite to that of S. P sits second from one of the extreme ends of the line. T sits second to the right of U.

Solving the puzzle:

1) P sits second from one of the extreme ends of the line.

- 2) R sits third to the right of P.
- 3) Two people sit between R and S.
- 4) U sits second to the right of S.



- 5) Immediate neighbors of S face in the direction opposite to that of S.
- 6) Immediate neighbors of U face opposite directions.
- 7) T sits second to the right of U.
- 8) Both U and T face the same direction.
- 9) W is an immediate neighbor of T.
- 10) W and T face opposite directions.



11) Persons sitting at extreme ends face opposite directions.

12) Q sits second to the left of V.

(Now, only X is left, thus X will occupy the extreme end)

13) X does not face south.

(Here, case 1 gets eliminated because in this case X faces south)

		N		N	1				Ŀ
	/	\ \	/					/	Γ
١	/ \$	ŝ	ן ב	ĴF	२ ा	ΓV	V F	>)	K

Q1. What is the position of V with respect to W?

- A. Second to the right
- B. Second to the left
- C. Sixth to the right
- D. Sixth to the left
- E. Cannot be determined

Answer: E



The direction in which W faces cannot be determined. Hence, the answer cannot be deduced.

Q2. Who sits fourth to the right of Q?

- A. W
- Β. Τ
- C. S
- D. V
- E. None of these





2. People sitting in double row

(Direction may vary according to the questions)

In this type, we follow the same pattern but we deal with two rows, and maximum times one row would be in the north direction and another in the south. So, people in these two rows will sit either facing each other or away from each other.

Note: There can also be cases where both the rows face North or both the rows face South.

Read the given information carefully and answer the following questions.

Twelve friends play a game in which they divide themselves into two teams 1 and 2 of six members each. Both the teams are standing in such a way that they face each other. Team 1 faces north and team 2 faces south. T does not face S. P stands opposite to B, who stands fifth to the left of U. S stands to the right of D and to the left of F. R, who belongs to Team 2 and is at third position from the left end of his row, is not a neighbour of Q. D, S and F are members of Team 1 while C, T and E are members of Team 2. A, who is standing opposite to Q, is at fifth position from the right end of his row. E and P belong to the same team.

Let us now solve this puzzle:

- 1) D, S and F are members of Team 1 while C, T and E are members of Team 2.
- 2) P stands opposite to B, who stands fifth to the left of U.

(Here, two cases are possible as shown in the figure)



3) A, who is standing opposite to Q, is at fifth position from the right end of his row.

(This means Q is also at fifth position from the right end of his row)

4) R, who belongs to Team 2 and is at third position from the left end of his row, is not a neighbour of Q.

(Thus, it is clear that Q is in Team 1 and A is Team 2)



5) E and P belong to the same team.

(From statement 1, we infer that E and P are in team 2. Hence, case 2 gets eliminated here)

6) E sits at one of the extreme ends.

(This implies that E sits at the right extreme end of row of team 2)

7) S stands to the right of D and to the left of F.

(From statement 1, we know that D, S and F are in Team 1)

8) T does not face S.

(Hence, T faces F and the remaining person, i.e. C faces S)



Q1. If A, R, S and F leave their teams and the remaining people shift towards their right to fill the gap, then who among the following will be standing opposite to Q in the new arrangement?

- Α. Ρ
- B. E
- С. Т
- D. C
- E. None of these

Answer: B

After A, R, S and F leave the arrangement and the remaining people shift towards their right to fill the gap, then the new arrangement will look like the figure drawn here.



Hence, in the new arrangement, E sits opposite to Q.

Q2. Who among the following does not stand at any extreme end of any row?

Α.	Ρ
В.	Е
C.	В
D.	U
E.	Т

Answer: E



Hence, T does not stand at any of the extreme ends of any row.

Q3. How many people stand to the right of C?

- A. None
- B. 1
- C. 2
- D. 3
- E. More than 3

Answer: D



Hence, three people - R, A and P stand to the right of C.

3. Unknown number of people sitting in a row

Till now, we have had puzzles that dealt with a certain given number of persons. But, in Banking Exams some questions come where the number of persons in a row is uncertain. But there is no need to worry, because the way of solving these puzzles will be just the same as discussed above.

Let us understand this with the help of an example:

Direction: Read the given information carefully and answer the following questions.

Certain number of monkeys are sitting in a row such that if the first monkey faces north, the next one faces south, and the next one again faces north and so on. Seventh monkey from the right end faces north. Eighth monkey from the left end faces south. There are eight monkeys between the fourth monkey from the left end and the third monkey from the right end.

Let us now try to solve this puzzle:

There are eight monkeys between the fourth monkey from the left end and the third monkey from the right end.

(This implies that there are total 15 monkeys sitting in the row)



Seventh monkey from the right end faces north.

Eighth monkey from the left end faces south.



If the first monkey faces north, the next one faces south, and the next one again faces north and so on.



Q1. If more five monkeys are added on each end of the row, how many monkeys will face south?

- A. 13
- B. 20
- C. 15
- D. 14
- E. 21

Answer: A



Hence, 13 monkeys will face south.

Q2. In which direction does the eleventh monkey from the right end face?

- A. South
- B. South-West
- C. North
- D. East
- E. West

Answer: C



Thus, the eleventh monkey from the right end faces North.

Q3. How many monkeys are there in the row?

- A. 15
- B. 20
- C. 13
- D. 12

Answer: A



Hence, 15 is the correct answer.

Note: If we have unidirectional instruction in a single row which is south facing and you are solving by drawing north direction flowchart then there is no need to worry about the answer because you just have to change the left and right sides in the end after solving the question. This will help you in those cases where initially direction is not mentioned, in that case, you can easily draw by considering north and at the end change according to the given conditions.

Now, you know all the basic concepts. We have also practiced with different types of questions. So keep practicing more and more questions to get good results in this topic.

Practice Questions:

Q(1-5) Read the given information carefully and answer the following questions.

Eight persons A, B, C, D, E, F, G and H are sitting in a row but not necessarily in the same order. Some of them are facing north and some of them are facing south.

B sits at one of the ends. B sits fourth to the left of D. E sits third to the right of A. A and B are not immediate neighbours. E is not an immediate neighbour of D. F sits second to the right of B. Immediate neighbours of H face in the same direction. B and D face the same direction. C sits third to the right of F. A faces south. H faces north. Immediate neighbours of C face in opposite directions. Not more than four people are facing either north or south.

- 1. Who sits third to the left of F?
 - A. None
 - B. D
 - C. E
 - D. C
 - E. None of these

2. How many people are facing north?

- A. None
- B. One
- C. Two
- D. Three
- E. Four
- 3. Which pair is sitting at the ends?
 - A. B, A
 - B. B, F
 - C. G, E
 - D. B, G
 - E. None of these
- 4. Which among the following is odd from the rest?
 - A. A
 - B. D
 - С. Н
 - D. B
 - E. F
- 5. Which of the following statements is false?
 - A. B sits at an end
 - B. G sits second to the left of C
 - C. F sits third to the right of E
 - D. F and H are immediate neighbour
 - E. All are false

Solutions:

1. (A)

Ans:



Hence, No one is sitting third to the left of F.

2. (E)

Ans:



Hence, four people are facing north.



Ans:



Hence, B and G are sitting at the ends.

4. (C)

Ans:



A, D, B, and F face south, while H faces north.

Hence, H is odd from the rest.

5. (C)

Ans:



Hence, 'F sits third to the right of E' is wrong.

CIRCULAR ARRANGEMENT

In our last study material, we discussed the type of seating arrangement- linear seating arrangement and circular seating arrangement. I hope you have practiced linear arrangement questions and now have a better understanding of it.

Now in this study material, we will discuss circular arrangement.

Circular Seating Arrangement

In this type of arrangement, we arrange people or objects around a circle or a table. In the case of people sitting around a table, the table could be of any shape – rectangular, triangular, square, circular etc.

Now, we will see how we draw the circular arrangement.

In a circular arrangement, we have two cases. First is when persons are facing towards the centre (inside) and another one is when persons are facing away from the centre (outside).

Case 1. Facing towards the centre

In the below arrangement, some persons say, A, B, C and D are sitting around a circle and they are facing towards the centre. The diagram highlights the left and right of each person for this case.



Case 2. Facing away from the centre

In the below arrangement, some persons say, A, B, C and D are sitting around a circle and they are facing away from the centre. The diagram highlights the left and right of the people for this case.



Some golden rules which will help you to solve questions of circular arrangement in minimum time:

1. Always note down the information on the rough side of your sheet when you're unable to relate them in the arrangement at that point of time.

2. When you have multiple cases of arrangement in which all conditions are satisfied then, in maximum cases your answer would be in 'either or' form. You have to consider both/all arrangements for answering.

3. Information follows up by WH-family or question words like, who, which, whose, for the person who is just before that word.

Like, E is the brother of F, who likes cricket.

This would mean that F likes cricket.

4. According to the latest pattern of **Banking Examination**, you will have multiple cases frequently in the arrangement so, in order to focus on one case, the examiner will ask conditional questions, thus you need to read each word carefully.

5. Kindly take a maximum of 2 minutes to read the given information and make arrangements accordingly.

Note: <u>Be careful of words like 'and', 'or', WH-family words especially, 'who', and</u> <u>'which' as these words can change the sense of the whole statement if perceived in</u> <u>the wrong way.</u>

Let's understand the concept with the help of a few questions:

Read the given information carefully and answer the following questions.

In a school festival, students put up different food stalls which are named as - P, Q, R, S, T, U, V and W. The stalls are put up next to each other in the form of a circle. Some stalls face

inside the circle (inward-facing) while some face outside the circle (outward-facing). The stall that is opposite to R does not face R. Stall U is third to the left of stall Q. V is exactly opposite to U. Stall W is not put up next to stall R. None of them face each other. Stall R faces in the opposite direction as compared to stall V and U. Stall S is third to the right of V. Stall T is opposite to stall W and both the stalls face each other. Stall P is put up exactly opposite to stall Q.

Let us solve this puzzle step by step:

- 1) Stall P is put up exactly opposite to stall Q. None of them face each other.
- 2) Stall U is third to the left of stall Q.
- 3) V is exactly opposite to U.



- 4) Stall S is third to the right of V.
- (This means V faces inward because otherwise, third to its right would be stall P)
- 5) Stall T is opposite to stall W and both the stalls face each other.
- 6) Stall W is not put up next to stall R.

(This means W is in between Q and S. Stall R is next to V and T is opposite to W)



7) Stall R faces in the opposite direction as compared to stall V and U.

(This means U faces inside and R faces outside)

8) The stall that is opposite to R does not face R.



Question: Which stall is put up third to the right of stall R?

- A. U
- B. W
- C. Q
- D. P
- E. None of these

Answer: A



Hence, stall U is put up third to the right of stall R.

Now, let us see some triangular, square and rectangular seating arrangement:

Triangular Arrangement

Read the given information carefully and answer the following questions:

Six people Amit, Beena, Chetna, David, Esha and Farhan are sitting around a triangular table in such a way that three of them are sitting at the corners and three of them are sitting in the middle of the sides. Those who are sitting at the corners face inside and those who are sitting in the middle of the sides face outside. Amit sits at the corner. Beena is an immediate neighbor of Amit. Two people sit between Beena and David. Esha sits to the immediate left of David. Chetna is an immediate neighbor of Esha.

Let us solve this puzzle:

- 1) Amit sits at the corner.
- 2) Beena is an immediate neighbor of Amit.
- 3) Two people sit between Beena and David.



4) Esha sits to the immediate left of David.

5) Chetna is an immediate neighbor of Esha.

(Here, case 1 gets eliminated because here Amit and David are the immediate neighbors of Esha. Also, since only Farhan is left, thus he sits to the right of David)



Question: Who sits second to the right of Beena?

Answer: Hence, Farhan sits second to the right of Beena.

Rectangular Arrangement

Read the given information carefully and answer the following questions.

Eight young entrepreneurs - Amit, Biswajeet, Chandrika, Devesh, Ekta, Fawad, Gautam and Harshit meet at a conference where they present their startup ideas - P, Q, R, S, T, U, V and W, not necessarily in the same order. All of them sit around a rectangular table, facing towards the centre, such that three people sit at each of the lengths and one person sits at each of the widths of the rectangular table. Chandrika comes with idea S. Idea T belongs to the person sitting on the immediate left of Gautam. Amit is not an immediate neighbour of Chandrika. Fawad does not come up with the idea U. Gautam sits third to the left of Ekta. The person with idea P does not sit in between Gautam and Harsh. Biswajeet is not an immediate neighbour of Amit. Ekta sits at one of the widths of the table. The person with idea W sits third to the right of Devesh. Chandrika sits third to the left of the person with idea T. Only one person sits on the side of the table that is opposite to Devesh. Amit comes with idea P. There is only one person sitting between Gautam, who comes with idea V and Harsh, who comes with idea W.

Let us solve this puzzle:

- 1) Only one person sits on the side of the table that is opposite to Devesh.
- (This implies Devesh sits at one of the widths)
- 2) The person with idea W sits third to the right of Devesh.
- 3) Ekta sits at one of the widths of the table.
- 4) Gautam sits third to the left of Ekta.



5) There is only one person sitting between Gautam, who comes with idea V and Harsh, who comes with idea W.

6) Idea T belongs to the person sitting on the immediate left of Gautam.

(Thus, idea T belongs to Devesh)



- 7) Amit comes with idea P.
- 8) Chandrika sits third to the left of the person with idea T.
- 9) The person with idea P does not sit in between Gautam and Harsh.
- 10) Amit is not an immediate neighbour of Chandrika.



- 11) The person with idea Q does not sit at any of the lengths of the table.
- (This means Ekta comes with idea Q)
- 12) Biswajeet is not an immediate neighbour of Amit.
- 13) Chandrika comes with idea S.

12) Fawad does not come with idea U.

(Thus, Biswajeet comes with idea R and Fawad comes with idea R)



Question: How many people sit between Amit and Biswajeet when counted from the right of Amit?

Answer: Thus, two people (Devesh and Gautam) are sitting between Amit and Biswajeet when counted from the right of Amit.

Semicircular Arrangement

Read the given information carefully and answer the following questions:

Six colleagues - Ashok, Binod, Chetna, Dharmesh, Ekta and Farah sit around a semicircular table in their office canteen, not necessarily in the same order. All of them face towards the centre of the table. Two of them sit at each of the corners of the table while Farah sits exactly between them. Rest of the three colleagues sit at the curved part of the table. Ekta sits on the right of the person sitting exactly opposite to Farah. Ashok sits on the immediate right of Farah. Dharmesh neither sits opposite to Farah nor at any of the corners. Farah is not a neighbour of Chetna.

Let us solve this puzzle step by step:

1) Two of them sit at each of the corners of the table while Farah sits exactly between them.

- 2) Rest of the three colleagues sit at the curved part of the table.
- 3) Ekta sits on the right of the person sitting exactly opposite to Farah.



- 4) Ashok sits on the immediate right of Farah.
- 5) Dharmesh neither sits opposite to Farah nor at any of the corners.
- 6) Farah is not a neighbour of Chetna.

(This implies that Chetna sits opposite to Farah and Binod sits next to Farah)



Question: How many people sit between Farah and Ekta when counted from the right of Farah?

Answer: Hence, three people sit between Farah and Ekta when counted from the right of Farah.

Square Arrangement

Read the given information carefully and answer the following questions.

Eight friends - Alex, Ben, Charlie, David, Emma, Foebe, Gunther and Helen are sitting around a square table, not necessarily in the same order. Four of them sit at the corners and four sit at the edges of the square table. All of them are facing outward. Charlie sits at one of the corners but not next to Alex. David sits third to the left of Alex. Gunther sits fifth to the right of David. Foebe does not sit opposite to Charlie. Emma does not sit at any of the corners. Alex sits opposite to Ben, but not at any corner.

Let us solve this puzzle step by step:

- 1) Alex sits opposite to Ben, but not at any corner.
- 2) David sits third to the left of Alex.
- 3) Gunther sits fifth to the right of David.



- 4) Charlie sits at one of the corners but not next to Alex.
- 5) Emma does not sit at any of the corners.



6) Foebe does not sit opposite to Charlie.



Question: How many people sit between Ben and Emma when counted from the right of Emma?

Answer: Hence, five people sit between Ben and Emma when counted from the right of Emma.

Now, we have covered all the different types of questions that can come from this topic. Now you can just practice more and more questions and have a strong command over the Seating Arrangement topic.

Practice Questions:

Q(1-5) Study the following information carefully and answer the question that follows:

Nine people are sitting around a table eating different food – Noodles, Momos, Mutton, Dosa, Chicken, Ice-cream, Cake, Chocolate and Biryani. Five people are facing outwards and the rest of them are facing inwards.

The person eating noodles is sitting on the immediate left of the person eating dosa. Both of them are facing outward. The person with mutton sits on the immediate right of person eating the dosa. The person eating momos, who is facing outward, is sitting between the person with chicken and the person with noodles. The person with chocolate, who faces outward, sits third to right of person with chicken. The person eating biryani sits immediately in between the person with chocolate and the person with mutton. The person eating biryani faces outward. The person eating ice-cream sits immediately on the left of the person eating cake.

- 1. Who sits immediately in between the person eating biryani and the person eating dosa ?
 - A. Person eating noodles
 - B. Person eating ice-cream
 - C. Person eating mutton
 - D. Person eating cake
 - E. Person eating chicken
- 2. Who sits second to the left of the person eating biryani ?
 - A. Person eating chicken
 - B. Person eating momos
 - C. Person eating noodles
 - D. Person eating ice-cream
 - E. Person eating dosa
- 3. Who sits third to the right of the person eating ice-cream?
 - A. Person eating biryani
 - B. Person eating chocolate
 - C. Person eating momos
 - D. Person eating dosa
 - E. Person eating noodles

4. The person who sits immediately between the person eating chicken and the person eating cake, eats which of the following food items?

- A. Noodles
- B. Chicken
- C. Ice-cream
- D. Momos
- E. Cake

5. Who sits third to the left of the person eating noodles?

- A. Person eating chocolate
- B. Person eating biryani
- C. Person eating momos
- D. Person eating ice-cream
- E. Person eating noodles
Solutions:

1. (C) Ans:

1) The person eating noodles is sitting on the immediate left of the person eating dosa. Both of them are facing outward.

2) The person with mutton sits on the immediate right of person eating dosa.



3) The person eating momos, who is facing outward, is sitting between the person with chicken and the person with noodles.

4) The person with chocolate, who faces outward, sits third to right of person with chicken.

(This implies that the person eating chicken faces inward because otherwise its third to the right would be the place where person eating dosa is sitting)

5) The person eating biryani sits immediately in between the person with chocolate and the person with mutton.

6) The person eating biryani faces outward.



7) The person eating ice-cream sits immediately on the left of the person eating cake.

(Since we already have five people facing outward, thus person eating ice-cream and person eating cake will face inward)



Hence, the person eating mutton sits immediately in between the person eating biryani and the person eating dosa.

2. (E)

Ans: Hence, person eating dosa sits second to the left of the person eating biryani.

3. (A)

Ans: Hence, person eating biryani sits third to the right of the person eating ice-cream.

4. (C)

Ans: Hence, person eating ice-cream sits immediately between the person eating chicken and the person eating cake.

5. (D)

Ans: Hence, the person eating ice-cream sits third to the left of the person eating noodles.

Blood Relations:

Blood Relations is a scoring topic of reasoning and sometimes we call it **Coded Relationship**. Both names are of the same meaning and indicate the same topic.

So, **Coded Relationship (Blood Relationship)** problems involve interpreting a given relationship string that is coded in a particular manner and then matching it with the relationship given in questions. The process of making relationship string by decoding each and every relation is time-consuming, thus to use less time we should be clear of all the relationship patterns that can exist between any two individuals. Very well-known relations are:

Mother, father, son, daughter, brother, sister, niece, nephew, uncle, aunt, husband, wife, cousin, grandfather, grandmother, grandson, granddaughter, brother-in-law, sister-in-law, father-in-law, mother-in-law, son-in-law, daughter-in-law.

The patterns of some relationships which help in solving questions in these topics are:

(The percent of relation with you)

Father's Father -	Grandfather (paternal grandfather)
Mother's Father -	Grandfather (maternal grandfather)
Father's Mother -	Grandmother (paternal grandmother)
Mother's Mother -	Grandmother (maternal grandmother)
Father's or Mother's Son -	Brother
Father's or Mother's Daughter -	Sister
Father's Brother -	Paternal Uncle
Father's Sister -	Paternal Aunt
Mother's Sister -	Maternal Aunt
Mother's Brother -	Maternal Uncle
Aunt's or Uncle's Son or Daughter -	Cousin
Son's Wife -	Daughter-in-law

Daughter's Husband -	Son-in-law
Husband's or Wife's Brother -	Brother-in-law
Husband's or Wife's Sister -	Sister-in-law
Brother's Wife -	Sister-in-law
Sister's Husband -	Brother-in-law
Brother's Son -	Nephew
Brother's Daughter -	Niece

NOTE: If it is given in the question that your brother/sister has only one brother/sister then it will be you and if it is given that your parents have only one child then it will be you again.

Sometimes, the term paternal and maternal are not given in question with the father's relatives and with the mother's relatives respectively, still, it should be totally understood by you because it is not necessary to put these words every time.

Now, with the help of some examples, we will see how to solve these questions. Firstly, in order to solve relations, we pick a protagonist (the leading character through which the relationship string shall be formed).

Generally, two types of questions are found in **Banking Exams**:

- 1. One person is telling another person about the former's family relation.
- 2. A third person's relation is being discussed by two or more persons.
- 3. More than 3 characters are given with a relationship string.

Now let us understand with the help of examples:

1. Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle". How is the boy related to the girl?

- A. Brother
- B. Nephew
- C. Uncle
- D. Son-in-law
- E. None of these

Ans. Option A

This is a two-person relation and no third person is involved. So, first of all, we will look for the protagonist and start decoding relations. We will take the girl as protagonist and go like this -

Girl 🛶 Son (Boy) Daughter Uncle Father

Girl's uncle's father - Girl's grandfather; Grandfather's daughter - Boy's mother; This implies that the girl's uncle and the boy's mother are siblings. Now, the girl and the boy can either be siblings or cousins. Since, 'Cousin' is not given in the option, thus the boy will be 'Brother' of the girl.

2. Pointing to a photograph of a boy, Sonu said, "He is the son of the only son of my mother". How is Sonu related to that boy?

- A. Brother
- B. Uncle
- C. Cousin
- D. Father
- E. None of these

Ans. Option D

Here, Sonu is talking to someone about the third person. So, we will start relationship string with Sonu:

Sonu son Mother only son

Sonu's mother's only son will be Sonu himself. As the boy who is in the photograph is the only son of the son of Sonu's mother, it means he is the son of Sonu and Sonu's mother is his grandmother. Hence Sonu is the father of that boy.

3. M is the father of N. L is the brother of M. P is the mother of L. How is N related to P?

- A. Grandson
- B. Can't be determined
- C. Granddaughter
- D. Nephew
- E. None of these

Ans. Option B

Here many characters are given and everyone is in the relationship string, so we can start sequence-wise by taking M as a protagonist.

As P is the mother of L and M. N is a child of M. So, N is grandson/granddaughter of P. That's why option B is correct as we cannot determine the gender of N.

Similarly, the following questions will be done. The questions below are given to practice at least twice as all the questions that are discussed here are taken from previous year papers of **Banking Exams**. It will help you in scoring well.

Directions: Study the given question carefully and answer the given question

Ques. C is the daughter of the one who is the son of B. There is only one married couple in the group. F is the brother of E, who is the daughter of D and granddaughter of B. A is the mother of C, who forms a married couple in the group.

- 4. What is true with respect to F?
- A. F is the son of B and A
- B. F is the daughter of C and E
- C. F is the son of D and A
- D. F is the daughter of B

Ans. Option C

When we make relationship string, we get B is grandfather/grandmother, A and D form a married couple and C, E, and F are siblings, where C and E are females and F is a male. So option C is correct.

5. How is B related to E?

- A. B is the uncle of E
- B. B is the grandmother of E
- C. B is the grandfather of E
- D. Can't be determined

Ans. Option D

As B can be a grandfather or grandmother, so only option D is correct.

Ques. L is the mother of J. J is the only daughter of R. R is the son of D. D is the wife of K. K is the father of T. T is the wife of Y.

- 6. How is L related to T?
- A. Niece
- B. Sister
- C. Daughter
- D. Daughter-in-law
- E. Sister-in-law
- 7. If X is the sister of J, then how is X related to Y?
- A. Son
- B. Nephew
- C. Daughter
- D. Niece
- E. Daughter-in-law
- 8. How is J related to K?
- A. Daughter
- B. Granddaughter
- C. Brother
- D. Grandfather
- E. Niece

Ques. All the given members belong to the same family. A is the mother of B. B is the sister of C. D is the son of C. E is the brother of D. F is the mother of E. G is the granddaughter of A. H has only two children B and C.

- 9. How is F related to H?
- A. Son-in-law
- B. Daughter-in-law
- C. Father
- D. Niece
- E. Brother
- 10. Who is the mother of G?
- A. C
- B. B
- C. F
- D. Either A or F
- E. Either C or F
- Ans. 6. Option E
- Ans. 7. Option D
- Ans. 8. Option B
- Ans. 9. Option B
- Ans. 10. Option C

Note: Father's or Mother's brother/Sister/Sister-in-law/brother-in-law will be parental or maternal Uncle/Aunt. (According to gender)

PUZZLES

Puzzles are the most important, common, and scoring topic in **Banking Examination**, there are at least 3-4 types of puzzles that are prevalent in the exam. A total of 15 marks can be scored straight away by solving these puzzles. This means you may fetch a good score in the exam with total attention and practice.

Some important points that everyone should know to achieve mastery on the miscellaneous puzzles:

- 1. This puzzle contains all reasoning topics in it but with a bit of complexity level.
- 2. You will use all the learned tricks in it that you have already learned in topics like Direction, Ranking, Series, Analogy, etc.
- 3. Practice is the only key to success, so keep practicing and growing.

Types of Puzzles

As we know, with every passing year, competition is getting tougher. So, every time the examiner tries to throw new challenges for the candidates. If the candidates want to crack the **Banking exam**, they should have mastery on this topic.

For helping you in your preparation and improving your performance, we are here with a variety of questions based on the latest pattern. Consider all the examples carefully.

Now, we will see different types of puzzles here.

We have already studies some of them in their separate study material, like:

- Day/month/Year/Time based puzzle (Scheduling)
- Linear Arrangement
- Parallel Row Arrangement
- Circular and Semicircular Arrangement
- Square, Rectangular and Triangular Arrangement
- Direction Sense
- Blood Relation

So, in this study material, we will be learning the following types of puzzles now:

- 1. Floor/Lift Based (Ordering/Stacking)
- 2. Box based (Ordering/Stacking)
- 3. Ranking Puzzles based on Comparison of Height, Rank, Marks, Weight, Age etc.
- 4. Designation based (salary, experience, etc)
- 5. Mix Puzzles

We will look into all these types one by one:

Ordering/Stacking based puzzles:

In this type of problem, a certain number of things are stacked, either one above the other or one after the other. You need to deduce the order in which the things are kept.

Example: A puzzle is formed on 5 boxes, labelled A, B, C, D, and E that are kept one above the other. So some indirect information will be provided in the puzzle with the help of which you will have to deduce the final arrangement of the boxes. Like, which box is kept at the bottom, which box is kept at the top, how many boxes are there between box A and B, etc.

The things that are being kept in a certain order can be anything: they can be boxes; people, animals; floors in a building; houses in a society; apartments on a floor, etc.

Majorly, two types of puzzles come from this section, they are: Box based and Floor based.

Let us learn each of them with the help of examples:

1. Box Based Puzzle:

Read the given information carefully and answer the following questions:

A, B, C, D, E, F and G are seven different boxes. Each box contains shoes from different brands - Adidas, Reebok, Woodland, Bata, Stilettos, Puma and Nike but not necessarily in the same order. Box which has Adidas shoes is immediately above A. There are only two boxes between box D and the box which has Adidas shoes. There are only three boxes between C and the box which contains Woodland shoes. C is below the box which contains Woodland shoes. F is at the top of all the boxes. The box which contains Nike is immediately above box C. Both C and D are above the box that contains Adidas shoes. The box which contains Bata shoes is immediately above box B. Box G does not contain Stilettos. Only one

box is there between B and E. Box B is above box E. Neither box B nor A contains Stilettos. Box A does not contain Reebok shoes.

Let us try to solve this puzzle step by step:

_

- 1. There are only three boxes between C and the box which contains Woodland shoes.
- 2. C is below the box which contains Woodland shoes.
- 3. The box which contains Nike shoes is immediately above C.

Case 1

E.

Box	Shoe Brand
	Woodland
	Nike
С	

Case 2

Box	Shoe Brand

	Woodland
	Nike
С	

Case 3

Box	Shoe Brand
	Woodland
	Nike
С	

- 4. There are only two boxes between D and the box which has Adidas shoes.
- 5. Both C and D are above the box that contains Adidas shoes.

(Case 3 gets eliminated here because in this case box C is placed at the very bottom)

Case 1(a)

Box	Shoe Brand
	Woodland
D	
	Nike
С	
	Adidas

Case 1 (b)

Box	Shoe Brand
	Woodland
D	Nike
С	
	Adidas

Case 2

Box	Shoe Brand
	Woodland
D	Nike
С	
	Adidas

6. Box which has Adidas shoes is immediately above box A.

(Case 1 (b) and Case 2 get eliminated here because in this case the box containing Adidas shoes is at the very bottom)

Box	Shoe Brand
	Woodland
D	
	Nike
С	
	Adidas
Α	

7. The box which contains Bata shoes is immediately above box B.

- 8. Only one box is there between box B and E.
- 9. Box B is above box E.
- 10. F is at the top of all the boxes.

(Therefore box F contains Woodland shoes)

(Also only one place in the box column is left. So we can place box G there)

Вох	Shoe Brand
F	Woodland
G	
D	Bata
В	Nike
С	
E	Adidas
Α	

- 11. Box G does not contain Stilettos.
- (So either box C or box A contains Stilettos)
- 12. Neither box B nor A contains Stilettos.
- (Therefore, box C contains Stilettos)
- 13. Box A does not contain Reebok shoes.

(Only Reebok and Puma shoes are left. Therefore, box A contains Puma and box G contains Reebok)

Box	Shoe Brand
F	Woodland
G	Reebok
D	Bata
В	Nike
С	Stilettos
E	Adidas
A	Puma

Q1. Which shoe brand is packed in box C?

Answer: Thus, Box C is containing Stilettos.

Q2. How many boxes are there between the box containing Puma shoes and box G?

Answer: Box A contains Puma shoes and there are four boxes between box A and box G.

Q3. Box E contains which shoe brand?

Answer: Box E contains Adidas shoes.

Q4. How many box(es) is/are there between box F and box B?

Answer: There are two boxes between box F and box B.

2. Floor Based Puzzle:

Let us try to learn Floor Based Puzzle with the help of some questions.

Read the given information carefully and answer the following questions:

Six friends - Rachel, Ross, Phoebe, Monica, Chandler, Phoebe and Joey live on different floors of a multi-storey building. The floors are numbered such that the lowermost floor is numbered 1 and the topmost floor is numbered 6. All of their houses need to get painted. Each of them has a different choice of color to paint their houses - orange, white, pink, yellow, blue and green. Chandler's house is not painted pink. Phoebe lives three floors above Monica. The house on the lowermost floor is to be painted with green color. Joey chooses yellow to paint his house. Rachel lives on the topmost floor and chooses neither pink nor blue color to paint her house. Monica chooses neither pink nor blue color for her house. There are two floors between Rachel's house and the house which is to be painted with orange color. Chandler lives four floors below Rachel. The house on the fourth floor is not painted with yellow color.

Let us try to solve this puzzle step by step:

1) Rachel lives on the topmost floor and chooses neither pink nor blue color to paint her house.

2) There are two floors between Rachel's house and the house which is to be painted with orange color.

3) The house on the lowermost floor is to be painted with green color.

Floor	Person	Color
6	Rachel	(Not Pink, Blue)
5		
4		
3		Orange
2		
1		Green

- 4) Joey chooses yellow to paint his house.
- 5) Chandler lives four floors below Rachel.

6) The house on the fourth floor is not painted with yellow color.

(This implies that Joey lives on the 5th floor. Also, now there is only white color left that Rachel could have chosen)

Floor	Person	Color
6	Rachel	White
5	Joey	Yellow
4		
3		Orange
2	Chandler	
1		Green

7) Monica chooses neither nor pink nor blue color for her house.

(Thus, Monica could have chosen either Orange or Green)

8) Chandler's house is not painted with pink.

(This implies that he chooses blue color; thus pink color is chosen for the house on 4th floor))

9) Phoebe lives three floors above Monica.

(This can only be possible if Monica lives on the lowermost floor. Also, since only Ross is left, thus he lives on the 3rd floor)

Floor	Person	Color
6	Rachel	White
5	Joey	Yellow

4	Phobe	Pink
3	Ross	Orange
2	Chandler	Blue
1	Monica	Green

Q1. Who chooses orange color to paint his/her house?

Answer: Ross chooses orange color for his house.

Q2. The house that is painted with white color is on which floor?

Answer: Rachel chooses white color for her house and she lives on the sixth floor.

Q3. How many floors are there above Monica's house?

Answer: Monica lives on the lowermost floor, i.e. floor numbered 1. Hence, there are five floors above her house.

Q4. How many floors are there between Joey's floor and Chandler's floor?

Answer: There are two floors between Joey's floor and Chandler's floor.

3. Ranking - Puzzles based on Comparison of Height, Rank, Marks, Weight, Age etc.

In this type of puzzle, certain entities (person / thing) are ranked on the basis of color, weight, height, age, marks, etc.

We use ranking in our everyday lives the most. Infact, you yourself are striving hard to get a good ranking in your **Banking Exam**. So, in your case the criteria of ranking will be marks.

Ranking based on marks:

Example: A puzzle can be based on 10 students in a class and who get different ranks. Now, based on the indirect information provided in the puzzle, you need to find out who gets which rank.

Ranking based on Height/Weight:

Example: A puzzle can be based on some persons who get their heights and weights measured. Now, with the help of indirect information provided in the puzzle, you need to find out who is taller/shorter than whom and who is lighter/heavier than whom. This becomes a classic case of comparison.

Ranking based on Age:

Example: A puzzle can be based on some persons whose ages are mentioned or their dates/months/years of births are given and they are ranked in the order of either youngest to oldest or vice versa. Now, with the help of indirect information provided in the puzzle, you need to find out this ranking order.

Let us learn this with the help of a few questions.

Read the following information carefully and answer the questions that follow.

There are eight people: Ajay, Bhanu, Chandan, David, Esha, Farah, Gautam and Hina. Their annual salaries are arranged in ascending order and then are ranked accordingly such that Rank 1 is for the highest earner and Rank 8 for the lowest.

Gautam earns more than only Hina and David. Chandan earns less than Esha, who is not the highest earner among all of them. The second highest person earns Rs 1500000 while the lowest earner earns Rs 200000. Ajay's annual income is Rs 600000 and he comes fifth in the ranking. Chandan's earning is double that of Ajay's earnings. Farah is the highest earner with annual income double than that of Bhanu's income. Bhanu's income ranks immediately between Ajay and Chandan. David earns Rs 425000, which is more than Hina's annual income. Among Bhanu and Farah, one of them earns Rs 1000000. Gautam earns Rs. 550000.

Let us try to solve this puzzle step by step:

1) Gautam earns more than only Hina and David.

(Therefore, Gautam is at third position while arranging the incomes in ascending order)

Hina/David < Hina/David < Gautam

2) Chandan earns less than Esha, who is not the highest earner among all of them.

Chandan < Esha <

3) Ajay's annual income is Rs 600000 and he comes fifth in the ranking.

(Therefore, Ajay's position while arranging from lowest to highest should be fourth)

Hina/David < Hina/David < Gautam < Ajay

Person	Income (Rs)	
Ajay	6,00,00 0	
Bhanu		
Chanda n		
David		
Esha		
Farah		
Hina		
Gautam		

4) Chandan's earning is double that of Ajay's earnings.

(Ajay's income = 600000

So, Chandan's income = $600000 \times 2 = 1200000$)

5) Farah is the highest earner with annual income double than that of Bhanu's income.



Ajay	6,00,000
Bhanu	
Chanda n	12,00,00 0
David	
Esha	
Farah	
Hina	
Gautam	

Hina/David < Hina/David < Gautam < Ajay < < < < Farah

6) Bhanu's income ranks immediately between Ajay and Chandan.

(Therefore, seventh position should be occupied by Esha)

Hina/David < Hina/David < Gautam < Ajay < Bhanu < Chandan < Esha < Farah

7) David earns Rs 425000, which is more than Hina's annual income.

(Since David's income is more than that of Hina. Therefore, Hina is the lowest earner)

8) The second highest person earns Rs 1500000 while the lowest earner earns Rs 200000.

(Therefore, clearly Esha earns Rs 1500000 and Hina earns Rs 200000)

Person	Income (Rs)
Ajay	6,00,000
Bhanu	

Chanda n	12,00,00 0
David	4,25,000
Esha	15,00,00 0
Farah	
Hina	2,00,000
Gautam	

Hina < David < Gautam < Ajay < Bhanu < Chandan < Esha < Farah

9) Among Bhanu and Farah, one of them earns Rs 1000000.

(Clearly, Bhanu earns Rs 1000000 because Farah is the highest earner and Esha earns Rs 1500000.

Also Farah's income is double than that of Bhanu.

So, Farah's income = 10,00,000 × 2 = 20,00,000)

10) Gautam earns Rs. 550000

Person	Income (Rs)
Ajay	6,00,000
Bhanu	10,00,000
Chandan	12,00,000
David	4,25,000
Esha	15,00,000
Farah	20,00,000
Hina	2,00,000
Gautam	5,50,000

Q1. Who is the lowest earner?

Answer: Hina is the lowest earner.

Q2. Whose income is the third highest?

Answer: Chandan has the third highest income.

Q3. What is the annual income of the highest earner?

Answer: Farah is the highest earner and she earns Rs 20,00,000

Q4. Whose annual income is Rs 12,00,000?

Answer: Chandan earns Rs 12,00,000.

Q5. Who ranks immediately between David and Ajay when arranged in increasing order of income?

Answer: Gautam ranks between David and Ajay.

4. Designation based (salary, experience, etc)

In this type of puzzle, a certain number of persons are given and one another variable, like their profession, position, experience, etc is given. We need to arrange them correctly along with the supporting variable.

Example: There can be 8 persons given in a puzzle along with 8 different professions. Now, with the help of the indirect information provided in the puzzle, we will need to match every person with his/her correct profession.

Note: There are some puzzles that are exactly similar to this type of puzzle, just there variables will be of a different type, like - the cities in which different persons live, colleges in which different persons study, colors that different persons wear, etc. In this way, there can be any variable given in the question but the method of solving them will be the same, irrespective of the variable.

Let us try to learn this by solving the puzzle given below.

Read the given information carefully and answer the questions that follow:

There are eight childhood friends - Astha, Banita, Chandan, Dinesh, Ekta, Farah, Garima and Hamid, who have different professions viz. Professor, Dentist, Banker, Athlete, Singer, Dancer, Engineer and Actor, not necessarily in the same order. Farah is neither an athlete nor an actor. Banita is neither an engineer nor a dentist. Neither Garima nor Hamid is a singer. Neither Dinesh nor Ekta is a dentist. Astha is a banker. Neither Farah nor Garima is a dentist. Chandan is neither an engineer nor an actor. Hamid is neither a dentist nor an actor. Neither Banita nor Ekta is an actor. Garima is neither an actor nor an engineer. Neither Ekta nor Farah is an engineer. Both Banita and Ekta are neither a singer nor an athlete. Ekta is not a professor.

- 1) Farah is neither an athlete nor an actor.
- 2) Banita is neither an engineer nor a dentist.
- 3) Neither Garima nor Hamid is a singer.
- 4) Neither Dinesh nor Ekta is a dentist.
- 5) Astha is a banker.

Persons	Profession
Astha	Banker
Banita	(Not engineer, dentist)
Chandan	
Dinesh	(Not dentist)
Ekta	(Not dentist)
Farah	(Not athlete, actor)
Garima	(Not singer)
Hamid	(Not singer)

- 6) Neither Farah nor Garima is a dentist.
- 7) Chandan is neither an engineer nor an actor.
- 8) Hamid is neither a dentist nor an actor.

(Now, only Chandan is left who can be a dentist. Thus, Chandan is a dentist)

Persons	Profession
Astha	Banker
Banita	(Not engineer)
Chandan	Dentist
Dinesh	
Ekta	
Farah	(Not athlete, actor)
Garima	(Not singer)
Hamid	(Not singer, actor)

- 9) Neither Banita nor Ekta is an actor.
- 10) Garima is neither an actor nor an engineer.
- 11) Neither Ekta nor Farah is an engineer.
- (Now, only Dinesh is left who can become an actor.
- Also, this leaves only Hamid who can be an engineer)

٦

Persons	Profession
---------	------------

Τ

Г

Astha	Banker
Banita	
Chandan	Dentist
Dinesh	Actor
Ekta	
Farah	(Not athlete)
Garima	(Not singer)
Hamid	Engineer

12) Both Banita and Ekta are neither a singer nor an athlete.

(Thus, now only Garima is left who can be an athlete.

Also, this leaves only Farah who can be a singer)

13) Ekta is not a professor.

(This implies that Banita is a professor and Ekta is a dancer)

Persons	Professio n
Astha	Banker
Banita	Professor
Chandan	Dentist
Dinesh	Actor
Ekta	Dancer
Farah	Singer
Garima	Athlete

Q1. Who is an athlete?

Answer: Garima is an athlete.

Q2. Who is an actor?

Actor: Dinesh is an actor.

5. Mix Puzzles:

In this type of puzzle, all the above types or any miscellaneous type of puzzle can be mixed. Like, Blood Relation can be mixed with Seating Arrangement, Floor Puzzle can be mixed with Designation based Puzzle, Direction based puzzle can be mixed with Ranking, and many more such combinations are possible.

Let us look into this mixed puzzle.

Read the given information carefully and answer the following questions:

A, B, C, D, E, F, G, H, I and J are ten people who live in a multi - storey building on different floors. The ground floor is numbered 1, the floor above is numbered 2 and so on, and the topmost floor is numbered 10. In the building, a get-together is held where all the ten members are present. They play a game where they are seated in two rows of five people each, such that one row faces south and another row faces north. F does not live on the lowest floor. The person who sits between F and J lives on the ground floor. Both F and I sit at the extreme ends of the north facing row. B faces J, who lives on the fourth floor. D faces I, who lives one floor above J. C lives on the topmost floor. Both A and G sit in the south facing row. G faces H who is sitting next to I. D lives one floor above E. The person who sits between B and D lives on the floor in between C's floor and B's floor. C sits second to the right of B, who lives on the eighth floor. B is sitting in the middle of the south facing row. H lives one floor above F. I does not face C.

Let us try to solve this puzzle step by step:

- 1) C lives on the topmost floor.
- 2) F does not live on the lowest floor.
- 3) B is sitting in the middle of the south facing row.

Floor	Person
10	С
9	
8	
7	
6	
5	
4	
3	
2	
1	(Not F)



- 4) C sits second to the right of B, who lives on eighth floor.
- 5) Both F and I sit at the extreme ends of north facing row.
- 6) I does not face C.

(Therefore, F faces C and I occupies the other end)

Floor	Person
10	С
9	
8	В
7	
6	
5	
4	
3	
2	
1	(Not F)



- 7) B faces J, who lives on the fourth floor.
- 8) D faces I, who lives one floor above J.



10	С
9	
8	В
7	
6	
5	I
4	J
3	
2	
1	(Not F)



9) Both A and G sit in the south facing row.

10) G faces H who is sitting next to I.

(Now only E is left, so E will occupy the only left place)



11) The person who sits between B and D lives on the floor in between C's floor and B's floor. (This means G lives on ninth floor)

12) The person who sits between F and J lives on the ground floor.

(Therefore E lives on ground floor)

13) D lives one floor above E.

(This means D lives on second floor)

Floor	Person
10	С
9	G
8	В
7	
6	
5	I
4	J
3	
2	D
1	E

14) H lives one floor above F.

(This is only possible if H lives on the seventh floor and F lives on the sixth floor.

Also since only A is left, so A lives on third floor)

Floor	Person
10	С

9	G
8	В
7	Н
6	F
5	I
4	J
3	A
2	D
1	E

Q1. Who lives on the 6th floor?

Answer: F lives on the 6th floor.

Q2. Who sits second to the left of B?

Answer: D sits second to the left of B.

Q3. Who lives on the floor immediately below H and above I?

Answer: F lives on the floor immediately below H and above I.

Now, we have discussed all types of puzzles that come in any **Banking Exam**. We have seen every type along with examples. Practice more and more questions using the concepts explained above and you can easily score 15-20 marks in the examination.

ASSUMPTIONS AND CONCLUSIONS

Banking Exams will contain 2-3 marks questions from "Assumption and Conclusion". Identifying assumptions and conclusions is often tricky and considered the hardest but it can be easy and familiar after frequent practice.

The relation between Assumption and Conclusion:

Assumptions are the unstated information needed to be valid for the conclusion to hold true. On the other hand, conclusions are made based on the assumptions given, so the conclusion needs to agree with the given assumptions.

Basically this Study Material has two topics: first is an assumption and another is the conclusion.

We will discuss assumptions first. Here are some points given below related to an assumption which will help you to choose the correct option:

- 1. Conclusion and argument are not assumptions.
- 2. Scientific facts and logical facts are valid for assumptions.
- 3. Individual and intellectual perspectives are valid for assumptions.
- 4. All government orders, information, and decisions are valid for assumptions.

5. If the assumption's sentence has <u>**''only**</u>" word in it then that assumption will not be acceptable.

6. Keep away from negative assumptions.

All the points mentioned above will help you to choose which assumption is valid according to a statement and which is not.

NOTE: If assumption has 'only' word in it or assumption is negative then in both cases assumptions would not be acceptable means, it will not be implicit for a given statement.

So, we will start doing questions of assumptions and then discuss a few conclusions.

Below are given some statements followed by some assumptions. You have to take the given statements to be true even if they seem to be at variance with the commonly known facts and then decide which of the given assumptions logically follows from the given statements:

1. Statement: Mohan requested his mother to arrange for food for about thirty persons as he invited all his friends to celebrate his birthday.

Assumptions:

I. Most of Mohan's friends may come to his house on his birthday.

- II. There may not be more than thirty who may attend Mohan's birthday party.
 - A. Only assumption I is implicit.
 - B. Only assumption II is implicit.
 - C. Neither I nor II is implicit.
 - D. Both I and II are implicit
 - E. Either I or II is implicit.

Answer. Option A

Doing this type of question, firstly we have to keep it in our mind that our statement is 100% true and then read both the assumptions and check whether it is followed or not.

Here assumption I is implicit according to the statement but assumption II is a negative sentence and we discussed in point 6 above that negative assumptions are 99% never implicit thus, keep away from negative assumptions.

Therefore only I is implicit here.

2. Statement: A very large number of aspiring students applied for admission to the professional courses run by the renowned college in town.

Assumptions:

I. All the applicants may be able to get admission to the college.

II. The admission process adopted by the renowned college may be fair to all the applicants.

- A. Only assumption I is implicit.
- B. Only assumption II is implicit.
- C. Neither I nor II is implicit.
- D. Both I and II are implicit
- E. Either I or II is implicit.

Answer. Option B

According to assumption I, all applicants may be able to get admission but as our statement says - aspiring students; so this means a very large number and in any professional course there is a fixed number of seats for admission. Thus, assumption I is not implicit here because there is a possibility of limited admission.

And assumption II says about the admission process which will be the same for all. So, assumption II is implicit here.

Generally in maximum cases, the negative assumption isn't implicit but there is only a 99% chance of it and 1% chance of it being implicit. Sometimes, the examiner asks the question from that 1% like this:

3. Statement: It will be a substantial achievement in the field of education if one provides one school for every village in our country and enforces attendance.

Assumptions:

I. Children in villages do not attend school regularly.

II. Providing school to every village is desirable.

- A. Only assumption I is implicit.
- B. Only assumption II is implicit.
- C. Neither I nor II is implicit.
- D. Both I and II implicit
- E. Either I or II is implicit.

Answer. Option D
The assumption I is negative but here the statement lays stress on enforcing on attendance (lack of attendance). So, for that this assumption is implicit.

This is the case of 1% where negative assumptions can be implicit.

Thus, this implies that children in villages do not attend school regularly. So, I is implicit.

Besides, the state calls 'one school for every village' a 'substantial achievement'. So, II is also implicit.

Now some conclusions based questions are discussed below which will help you to understand the basic difference between assumptions and conclusions that we have discussed in the introduction part of this topic.

Below are given statements followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance with the commonly known facts and then decide which of the given conclusions logically follows from the given statements.

4. Statement - Domestic demand has been increasing faster than the production of indigenous crude oil.

Conclusion:

- I. Crude oil must be imported
- II. Domestic demand must be reduced
- A. Only conclusion I follows.
- B. Only conclusion II follows.
- C. Neither I nor II follows.
- D. Both I and II follow.
- E. Either I or II follows

Answer. Option C

Here the statement lays stress on indicating the relation between the increasing domestic demand for and production of indigenous crude oil.

The statement does not mention anything about either importing crude oil or reducing demand. Thus, none of the conclusions follow.

5. Statement -

A. If all players play to their full potential we will win the match.

B. We have won the match.

Conclusion

I. All players played to their full potential.

II. Some players did not play to their full potential.

- A. Only conclusion II follows
- B. Only conclusion I follows
- C. Neither I nor II follows
- D. Both I and II follow
- E. Either I or II follows

Answer. Option B

Statement A tells about the future that we will win the match if all players play to their full potential and statement B tells about past situations that we won the match

This indicates that all the players played to their full potential.

And conclusion II is totally opposite of the statement so, conclusion II is not implicit

Thus, only conclusion I follows here.

Here are some quick tricks for finding assumptions and conclusions:

- 1. The statement would be always 100% true. Based on the given information in the statement, consider and check assumptions and conclusions accordingly.
- 2. An assumption is a piece of information not stated in the argument that must be true for the argument's conclusion to hold true. Look at the unstated premise and check the validation of the conclusion.

- 3. The conclusion and assumption must be based on the given premise(s). Check all the connections and then decide whether it is implicit or not.
- 4. Read the given information, eliminate off-topic and negative conclusion and assumption which is out of boundary or showing/following opposite track.
- 5. If the given choices are not in any way connected with the given statement, then eliminate those unrelated answers and choose neither I nor II or none option.
- 6. Eliminate negative assumptions or answers which are opposite from the given statement as there is a 99% chance of having that answer wrong.
- 7. Eliminate too broad answers.
- 8. The correct assumption must connect the evidence to the conclusion. Try to come up with one or several assumptions that underpin the argument. Show that the evidence given is relevant to the conclusion offered.

NOTE: Negative assumptions or opposite answers are never implicit for a given statement and there is 99% chance of it but that 1% chance of it being implicit always gives complexity. Thus, always cross-check the answer once as the examiner likes to ask this rare type of question.

DATA SUFFICIENCY

Data sufficiency uses direct and indirect skills or knowledge of logical concepts. The data sufficiency reasoning questions consist of a question followed by two statements. Your job is to decide whether the information in the statement taken individually or together with another statement is sufficient to answer the question. These questions require much less calculation than standard problem solving: evaluate rather than calculate. You need to find a unique answer to the question asked. More than one answer is not allowed.

As we know data sufficiency is a very important part of reasoning and all competitive exams. So, you cannot take the risk of skipping it. Now further in this study material, we are going to discuss the approach we should follow while solving data sufficiency questions.

You may consider approaching data sufficiency questions as follows:

1. Read the question thoroughly. As each word of statement and direction is important, it might change the whole question if understood in a wrong manner.

- 2. Determine whether the question is a value question or yes/no question.
- 3. A glance at two statements.
- 4. Simplify the question.
- 5. Simplify and evaluate the statements

6. After checking A (i. e. the first statement), then check B (i. e. the second statement) lastly, if required, combine the two statements to get the answer.

Note: Never make any assumptions while solving data sufficiency, always read the complete question carefully and then go through all the steps.

Do remember: Always try to make calculations in your mind, don't use pen and notebook every time. Try to see whether it is solvable or not and then you will get your answer.

Now, learn the art of solving data sufficiency questions for your banking exam with the help of questions which are taken from previous years' banking exam.

Examples:

Directions (Qs. 1 to 2): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether data provided in the statements are sufficient to answer the question. Read both the statements and give an answer-

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.

B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.

C. If the data either in statement I or in statement II alone are sufficient to answer the question.

D. If the data even in both statements I and II together are not sufficient to answer the question and

E. If the data in both statements I and II together are necessary to answer the question.

1. Five persons - P, Q, X, Y and Z are sitting around a circular table with all of them facing towards the center. Who sits to the immediate left of Q?

Statement I: P sits third to right of Q. X sits third to right of P.

Statement II: Q sits immediately to the left of X who sits second to left of P. Y does not sit adjacent to Q.

Solution. Option B

From statement I, it is referred to that P sits third to right of Q and X sits third to right of P. Using the given information we can create the following circular arrangement.



Here, we can clearly observe that in the above circular arrangement either Y or Z can sit on the immediate left of Q.

Hence, data in statement I alone is not sufficient.

From statement II, Q sits immediately to the left of X who sits second to left of P. Y does not sit adjacent to Q. Using the given information we can create the following circular arrangement.



Here, in the above circular arrangement, it is clear that Z sits on the immediate left of Q.

Hence, data in statement II alone is sufficient.

Hence, the correct answer is option B.

2. Among E, F, G, H, and I who is in the middle while standing in a row facing north?

I. F, who is 4th from the right end, is immediately to the left of G.

II. H, who is not the neighbor of E and F, is to the immediate left of I who is at the right end.

Solution. Option C

According to statement I, F is 4th from the right end and on the immediate left of G. So, G will be 3rd from the right, i.e. the middle of the row.

Hence, statement I alone is sufficient to answer the question.

According to statement II, I is on the right end and H is immediately to the left of I. E and F are not the neighbors of H. Thus only G can be the neighbour of H. So, G will occupy the middle position.

Hence, statement II alone is sufficient to answer the question,

Thus, both statements I and II alone are sufficient to answer the question.

So, guys! This is the all for Data Sufficiency topic. We have done all types of questions, previous years' questions and latest patterns too. Remember to read all the information and

statements carefully and then eliminate the statements one by one, if you get your answer there, then go ahead if not, then combine all statements, and lastly if combination of either or both is not working, then go with 'either or' or 'none' case. Try to check their solvability. Keep shining, keep growing.

SYLLOGISM

This is an important and scoring topic but the complexity of questions in reasoning ability for the **<u>Banking Exams</u>** is increasing tremendously. So, cracking questions can be made easy if one gets into the habit of continuous practice.

<u>Syllogism</u>

The syllogism is an instance of a form of reasoning in which a conclusion is drawn from two or more given or assumed propositions (premises); a common or middle term is present in the two premises. It is deductive reasoning rather than inductive reasoning.

Let us understand it by an example (take two propositions):

Statement:

I: All dogs are animals.

II: All animals have four legs.

We can conclude on the basis of the above two statements that - All dogs have four legs.

So, basically syllogism contains two or more propositions, on the basis of which, we can derive an inference or conclusion.

Proposition

A proposition is a statement which gives a relation between two terms. It has three parts:

- a. The subject
- b. The predicate and
- c. The relation between the subject and the predicate

For example:

- 1. All cups are machines
- 2. No bed is a chair
- 3. Some toys are bulbs

4. Some trees are not big

Here, 'cups', 'bed', 'toys', 'trees', are subjects while 'machines', 'chair', 'bulbs', and 'big' are predicates.

By examples, we can understand that a subject is that part of the proposition about which something is being said and a predicate is that term of the proposition which is stated about or related to the subject.

There are four types of propositions: A, E, I, and O. All questions will be surrounded by these four types of propositions.

Universal	Type of Proposition
A Format: All B are A	Positive
E Format: No B are A	Negative
Particular	Type of Proposition
Particular I Format: Some B are P	Type of Proposition Positive

We use the Euler's Circle (Venn Diagram) method to solve Syllogism questions.

Euler's circle representations of A-type propositions: All B are A



Euler's circle representation of E type propositions: No B are A



Euler's circle representation of I type proposition (Some B are A)



Euler's circle representation of O type proposition: (Some B are not A)



These Venn diagrams will help you to derive the conclusion of the statements.

Let us have a glance at some rules of syllogism which will make it even quicker for you to solve all the syllogism questions in your exam in no time.

SYLLOGISM Tricks and Rules:

- 1. With two particular statements, no universal conclusion is possible.
- 2. With two positive statements, no negative conclusion is possible.
- 3. With two negative statements, no positive conclusion is possible.
- 4. The common term/middle term should be distributed at least once and the common term should not appear in conclusion.
- 5. If one premise is particular then the conclusion is particular.
- 6. With two particular statements, no conclusion is possible.
- 7. When an 'l' type of statement is given, then by reversing it an 'l' type of conclusion is possible.

DO REMEMBER: If a term is not distributed in the premises then it cannot be distributed in the conclusions.

NOTE: There are some statements which can confuse you at first glance but the meaning of those statements is the same as the given statement, like:

"All A are not B" is the same as "Some A are not B".

"Only A are B" is the same as "All B are A".

"No A is B" is the same as "No A are B".

Now we will understand it and apply these rules in the following examples:

Directions (Qs. 1-4): In each question below, are given two statements followed by two conclusions numbered I and II. You have to take the two given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follow from the two given statements, disregarding commonly known facts. Read both the statements and give your 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 and give an answer
- (E) if both I and II follow.

1. Statements

- I. All tomatoes are red.
- II. All grapes are tomatoes.

Conclusions

- I. All grapes are red.
- II. Some tomatoes are grapes

Answer: E

The least possible Venn Diagram for the given statements is shown below:



Conclusions

- I. All grapes are red: True (because all grapes are tomatoes and all tomatoes are red)
- II. Some tomatoes are grapes: True (because all grapes are tomatoes)

2. Statements:

- I. Some dogs are pups.
- II. All horses are pups.

Conclusions:

- I. Some dogs are horses.
- II. Some horses are dogs.

Answer: D

The least possible Venn diagram that can be formed from the given statements is shown below:



Conclusions:

- I. Some dogs are horses: False (because it is possible but not definite)
- II. Some horses are dogs: False (because this is possible but not definite)

3. Statements:

I. All weavers are hard working.

II. No hard-working men are foolish.

Conclusions:

- I. No weavers are foolish.
- II. Some foolish are weavers.

Answer: A

The least possible Venn diagram that can be drawn is shown below:



Conclusions:

- I. No weavers are foolish: True (because all weavers are hard-working and no hard-working are foolish)
- II. Some foolish are weavers: False (because no foolish are weavers)

4. Select the set of conclusions which logically follows from the given statements.

Statements I: All bombs are bags.

II: Some bags are jets.

Conclusions I: All bombs are jets.

II: All jets are bombs.

III: Some jets are bombs.

IV: Some bombs are jets.

- A. Only conclusion III follows.
- B. Only conclusions I and II follow.
- C. All conclusions are correct'
- D. Only conclusions III and IV follow.
- E. None of these

Ans. E

When all bombs are bags and some bags are jets then all bombs cannot be jets. Some bags indicate that there is no chance of some bombs being jets, or some jets being bombs. Further, all jets cannot be bombs. Therefore, all conclusions are incorrect.



Note: In syllogism, two cases are very common and very tricky at the same time. They might confuse you during exam if you do not understand the concept thoroughly. They are: 'Either or' case and 'Possibility case'.

Let us look at each one of them with the help of examples:

1. Statements:

Only a few vowels are letters.

No vowel is a number.

Conclusions:

- I. Some letters are numbers.
- II. No letters are numbers
 - A. Only I follows
 - B. Only II follows
 - C. Both I and II follow
 - D. Either I or II follows
 - E. Neither I nor II follows

Answer: D

The least possible Venn Diagram is shown below:



- I. Some letters are numbers: True only if conclusion II is definitely false.
- II. No letters are numbers: True only if conclusion I is definitely false.

Thus, either conclusion I or II follows.

```
1. कथन:
```

केवल कुछ स्वर अक्षर हैं।

कोई स्वर संख्या नहीं है।

निष्कर्ष:

- l. कुछ अक्षर संख्या हैं।
- II. कोई अक्षर संख्या नहीं हैं

 - A. केवल | अनुसरण करता है
 B. केवल || अनुसरण करता है
 C. | और || दोनों अनुसरण करते हैं

 - D. या तो । या ॥ अनुसरण करता है E. न तो । और न ही ॥ अनुसरण करता है

उत्तर: D

दिए गए कथनों के लिए न्यूनतम संभव वेन आरेख नीचे दिया गया है:

Letter Vowel Number

निष्कर्ष:

- ।. कुछ अक्षर संख्याएँ हैं: केवल तभी सत्य है यदि निष्कर्ष ।। निश्चित रूप से गलत है।
- II. कोई भी अक्षर संख्या नहीं है: केवल तभी सत्य है यदि निष्कर्ष | निश्चित रूप से गलत है।

इसलिए, या तो निष्कर्ष । या ॥ अनुसरण करता है

2. Statements:

Only some Ps are Qs.

No R is Q.

Conclusions:

I. No R is P.

II. All Qs being P is a possibility.

- A. Only I follows
- B. Only II follows
- C. Both I and II follow
- D. Either I or II follows
- E. Neither I nor II follows

Answer: B

The least possible Venn diagram for the given statements is drawn below:

PQ-R

Conclusions:

I. No R is P: False (This is possible but not definite)

II. All Qs being P is a possibility: **True** (All Qs can definitely be P but all P cannot be Q)

This is all you need to know about Syllogisms.

Practice Questions:

Q(1-3) In this question, three statements are given, followed by three conclusions, I, II and III. You have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements

1. Statements

Some blue are green.

Some green are red.

Some red are black.

- I. Some blue are red.
- II. Some green are black.
- III. Some blue are definitely black.
 - A. Only I follows
 - B. Only II follows
 - C. Only III follows
 - D. All follow
 - E. None follows

2. Statements

No spike is a rubber.

All rubbers are plastics.

Some rubbers are wool.

Conclusions:

- I. Some plastics are wool.
- II. Some plastics are rubbers.
- III. Some plastics are spikes.
 - A. Only I and III follow
 - B. Only I and II follow
 - C. Only II and III follow
 - D. All follow
 - E. None follows

3. Statements

20% copies are books.

0% books are pens.

100% pens are pencils.

- I. No copy is a pen.
- II. No book is a pencil.
- III. Some books are pencils
 - A. Only II and III follow
 - B. Either II or III follows

- C. Only I and II follow
- D. Only III follows
- E. Only II follows

Solutions:

1. (E) Ans:

The least possible Venn diagram for the given statements is shown below:

Blue () Green () Red () Black

Conclusions:

- I. Some blue are red **False** (This is possible but not definite)
- II. Some green are black False (This is possible but not definite)
- III. Some blue are definitely black False (This is possible but not definite)

2. (B)

Ans:

The least possible Venn diagram for the given statements is drawn below:



Conclusions:

- I. Some plastics are wool True (All rubbers are plastics and some rubbers are wool)
- II. Some plastics are rubbers True (All rubbers are plastics)
- III. Some plastics are spikes False (This is possible but not definite)

3. (B) Ans:

The least possible Venn diagram for the given statements is drawn below:



- I. No copy is a pen False (This is possible but not definite)
- II. No book is a pencil This is true only if conclusion III is definitely false.
- III. Some books are pencils This is true only if conclusion II is definitely false.