



New

# Test of Reasoning

Edition 2017

Study Material  
For

# Test of Reasoning



Regd. Office :- A-202, Shanti Enclave, Opp.Railway Station, Mira Road(E), Mumbai.  
[www.bankpo.laqshya.in](http://www.bankpo.laqshya.in) | [bankpo@laqshya.in](mailto:bankpo@laqshya.in)

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## **Reasoning Aptitude For IBPS PO / SBI PO / Bank Clerical Exams**

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## **1. CODING - DECODING**

A code is a system of signals. Therefore, coding is a method of transmitting messages between the sender and receiver without a third person understanding it. The Coding and Decoding test is set up to judge the candidate's ability to decipher the law that codes a particular message and break the code to reveal the message. Following Table will help you code-decode -

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

### **A. LETTER CODING -**

A particular letter stands for another letter in letter coding.

Example - If COURSE is coded as FRXUVH, how is RACE coded in that code?

- (1) HF DU (2) UCFH (3) UDFH (4) UDHF (5) UDFG

In the given code, each letter is moved three steps forward than the corresponding letter in the word. So R is coded as U, A as D, C as F, E as H. Hence (3) is the answer.

### **B. NUMBER CODING -**

In these questions, either numerical code values are assigned to a word or alphabetical code values are assigned to numbers. The candidate is required to analyse the code as per directions.

Case I: When numerical values are assigned to words.

Example : If in a certain code ROPE is coded as 6821, CHAIR is coded as 73456 what will be the code for CRAPE?

- (1) 73456 (2) 76421 (3) 77246 (4) 77123 (5) None of these

Clearly, in the given code, the alphabets are coded as follows.

R	O	P	E	C	H	A	I	R
6	8	2	1	7	3	4	5	6

So CRAPE is coded as 76421, So the answer is (2)

Case II: When alphabetical code values are assigned to the numbers.

Example: In a certain code 3456 is coded as ROPE. 15546 is coded as APPLE. Then how is 54613 coded?

- (1) RPPEO (2) ROPEA (3) POEAR (4) PAREO (5) None of these

Clearly in the given figures, the numbers are coded as follows.

3	4	5	6	1	4
R	O	P	E	A	L

So 54613 is coded as POEAR. The answer is (3)

### C. MIXED CODING -

In this type of question, three or four complete messages are given in the coded language and the code for a particular word is asked. To analyse such codes, any two messages bearing the common word are picked up. The common code word will mean that word. Proceeding similarly by picking up all possible combinations of two messages the entire message can be analysed.

Example : If *tee see pee* means *drink fruit juice*, *see kee lee* means *juice is sweet*, and *lee ree mee* means *he is intelligent*, which word in that language means *sweet*?

- (1) see (2) kee (3) lee (4) pee (5) tee

In the first and the second statements the common word is juice and the common code word is *see*. So *see* means juice. In the second and the third statements, the common word is 'is' and the common code is *lee*. So *lee* means is. Thus in the second statement, the remaining word *sweet* is coded as *kee*. Hence the answer is (2).

### D. MIXED NUMBER CODING -

In this type of questions, three or four complete messages are given in the coded language and the code number for a particular word is asked.

Example: If in a certain code language, 851 means *good sweet fruit*; 783 means *good red rose* and 341 means *rose and fruit* which of the following digits stands for *sweet* in that language?

- (1) 8    (2) 5    (3) 1    (4) 3    (5) None of these

In the first and the second statements, the common code digit is 8 and the common word is *good*. So 8 stands for *good*. In the first and the third statements, the common code digit is 1 and the common word is *fruit*. So 1 stands for *fruit*. Therefore in the first statement, 5 stands for *sweet*. Hence the answer is (2).

### E. DECODING -

In these questions, artificial or code values are assigned to a word or a group of words and the candidate is required to find out the original words.

Example : If in a certain language FLOWER is written as EKNVDQ, what will be written as GNTRD?

- (1) HEOUS (2) HOUES (3) HUOSE (4) HOUSE (5) None of these

Each letter of the word is one step ahead of the corresponding letter of the code.

E	K	N	V	D	Q
F	L	O	W	E	R

G	N	T	R	D
H	O	U	S	E

Thus HOUSE is written as GNTRD, So the answer is (4)

#### F. NEW TYPE OF CODING -

This is a kind of coding recently included in the Reasoning section. In this type of questions either alphabetical code values are assigned to symbols or symbols are assigned to alphabets. The candidate is required to analyse the code as per direction.

Example. In a certain code ‘TOME’ is written as @ \$ \* ? and ARE is written as • £ ? How can ‘REMOTE’ be written in that code?

- (1) £ ? • \$ @ ?      (2) @ ? \* \$ @ ?      (3) £ ? \* \$ @ ?      (4) Cannot be determined  
 (5) None of these

Sol: From the data we have

T = @   O = \$   M = \*   E = ? and A = •   R = £   E = ?

Hence REMOTE is coded as £ ? \* \$ @ ? So (3) is the answer.

## 2. SERIES COMPLETION

This section deals with questions in which series of numbers or letters are given. The term follows a certain pattern throughout. The candidate is required to recognise this pattern either to complete the given series with the most suitable alternative or to find the wrong term in the series.

### A. NUMBER SERIES -

Example-1- Which number would replace the question mark (?) in the series 2, 7, 14, 23, ?, 47

- (1) 28 (2) 34 (3) 31 (4) 38 (5) None

Ans: The given sequence is +5, +7, +9, —— , ie.  $2+5=7$ ,  $7+7=14$ ,  $14+9=23$

Missing Number =  $23 + 11 = 34$ .

Example -2- Find the wrong number in the series- 7, 28, 63, 124, 215, 342

- (1) 7 (2) 28 (3) 124 (4) 215 (5) None

Ans: The correct sequence is  $2^3 - 1$ ,  $3^3 - 1$ ,  $4^3 - 1$ , ...etc.

Here 28 is wrong; so the answer is (2)

### B. ALPHABET SERIES -

Alphabet series consists of letters of the alphabet placed in a specific pattern. If you keep in your mind the order of the letters with their respective numbers it will help you answer the questions quickly.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
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
26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Example. What will be the next term in BKS, DJT, FIU, HHV, ?

- (1) IJX (2) IGX (3) JGW (4) IGU(5) JGU

Ans: (3). In each term, the first letter is moved two steps forward, the second letter one step backward and the third letter one step forward to obtain the corresponding letter of the next term. So, the missing term is JGW.

### C. LETTER SERIES -

This type of question usually consists of a series of small letters which follow a certain pattern. However some letters are missing from the series. These missing letters are then given in a proper sequence as one of the alternatives. The candidate is required to choose this alternative as the answer.

Example. aab - aaa - bba -

(1) baa (2) abb (3) bab (4) aab(5) bbb

1. The first blank space should be filled in by 'b' so that we have two a's followed by two b's.
2. The second blank space should be filled in either by 'a'. So that we have four a's followed by two b's, or by 'b'. So that we have three a's followed by three b's.
3. The last space must be filled in by 'a'.
4. Thus we have two possible answers - 'baa' and 'bba'.
5. But only 'baa' appears in the alternatives. So the answer is (1).
6. In case we had both the possible answers in the alternatives, we should choose the one that forms a more prominent pattern, which is aabb/aaabbb/aa. and our answer would have been 'bba'.



### **3. ODDMAN OUT**

Classification means ‘to assort the items of a given group on the basis of certain common qualities or characteristics they possess and to spot the stranger.’ These types of questions are based on similar relationship that exists between the things, objects, words or letters. In this test, generally, you will be given a group of five items, out of which four are similar to one another in some way and the fifth is different. The candidate is required to choose the item which does not fit into the given group.

#### **Types of Classification**

- A. Word classification:** In this type similar groups are found among the names, places, things, nouns, verbs, different sexes, races or any other matter out of which four things are similar and one is not.
- B. Alphabet classification:** Here some groups of letters are formed according to a pattern and one of them is different.
- C. Number classification:** Here out of a given group of numbers four will be similar one will be strange.

#### **HINTS FOR CLASSIFICATION**

Verbal classification aims to test your power of observation and ability to notice differences and similarities among various objects. So search for the relationship among the given items. Relationship may be based on meaning, interrelationship, consistency relationship etc.

Search for the similarities among alphabet groups. Particularly vowel-consonant relationship, capital-small letter relationship, repetition and frequency of letters skipping pattern in alphabet groups.

Remember that in classification you are not searching for a stranger but you are classifying different items into a group and one item which refuses to be a part of the group is the stranger.

If you straight away search for a stranger, you may land in trouble because every item in the given group will be a stranger in some way or another. So think of the possible group in which you can group different items and find the stranger.

Example – Find the Odd Man Out from the following -

- (1) Ladder (2) Staircase (3) Bridge (4) Escalator (5) Lift

ANS- (3) All except bridge are used for up and down movement.

## 4. **ANALOGY**

### A. SIMPLE ANALOGY

Analogy means ‘correspondence’. In the questions based on analogy, a particular relationship is given and another similar relationship has to be identified from the alternatives provided. Analogy tools are therefore meant to test one’s ability to reason - how far you are able to compare and comprehend the relationship that exists between two objects, things or figures.

Verbal analogy measures the ability to understand the relationship between two given words or group of letters, presented in abbreviated form. See the following example.

**Moon : Satellite :: Earth : Planet**

This abbreviated form conveys the idea that moon is related to satellite in the same way as the earth is related to planet.

### Look for the Kinds of Relationship

There are many possibilities in establishing a relationship. Here are some useful points on the basic knowledge required for the test.

#### **Worker and Product**

Example: Carpenter : Furniture :: Mason : Wall  
Carpenter makes Furniture and Mason builds a Wall.

#### **Worker and Tool Relationship**

Example: Woodcutter : Axe :: Soldier : Gun  
Axe is the tool used by a Woodcutter, likewise a Soldier uses a Gun to shoot.

#### **Tool and Action**

Example: Pen : Write :: Knife : Cut  
Pen is used for Writing and Knife is used for Cutting

#### **Worker and Working Place**

Example: Farmer : Field :: Doctor : Hospital  
A Farmer works on a Field while a Doctor works in a Hospital.

#### **Product and Raw Material**

Example: Cloth : Fibre :: Petrol : Crude Oil  
Cloth is made of Fibre and Petrol is extracted from Crude oil.

#### **Quantity and Unit**

Example: Length : Metre :: Distance : Light Year  
Metre is the unit of Length and Light year is the unit of Distance.

#### **Instrument and Measurement**

Example: Barometer : Pressure :: Speedometer : Speed  
Barometer is used to measure Pressure. Speedometer is used to measure Speed.

**Study and Topic**

Example: Botany : Plants :: Ornithology : Birds

Botany is the study of Plants, Ornithology is the study of Birds.

**Animal and Young Ones**

Example: Cat : Kitten :: Dog : Puppy

Kitten is the young one of a Cat and Puppy is the young one of a Dog.

**Male and Female**

Example: Son : Daughter :: Nephew : Niece

**Word and Synonym**

Example: Mend : Repair :: House : Home

**Word and Antonym**

Example: Ignore : Notice :: Friend : Foe

**13. Word and Intensity**

Example: Anger : Rage :: Joy : Ecstasy

Rage is greater degree of Anger and Ecstasy is greater degree of Joy.

**B. ALPHABET ANALOGY**

There is another kind of analogy that can be asked in this section. In this type of question, two groups of letters related to each other in some way are given. The candidate is required to find this relationship and choose a group of letters which is related in the same way to a third group provided in the question.

Example - NFK : PHM :: AXH : ?

(1) BYI (2) ZWG (3) CZJ (4) DAK (5) YVF

Sol. (3) Each letter of the first group is moved two steps forward to obtain the corresponding letter of the second group. A similar relationship will exist between the third and the fourth groups.

## 5. BLOOD RELATIONSHIP

In this test, the success of a candidate depends upon the knowledge of the blood relations, some of which are summarized below to help you solve these tests.

Mother's or father's son	- Brother
Mother's or father's daughter	- Sister
Mother's or father's brother	- Uncle
Mother's or father's sister	- Aunt
Mother's or father's mother	- Grandmother
Mother's or father's father	- Grandfather
Son's wife	- Daughter-in-law
Daughter's husband	- Son-in-law
Husband's or wife's brother	- Brother-in-law
Sister's or brother's son	- Nephew
Brother's or Sister's daughter	- Niece
Uncle's or aunt's son or daughter	- Cousin
Sister's husband	- Brother-in-law
Brother's wife	- Sister-in-law

Example - Introducing a girl, Santhosh said, "Her mother is the only daughter of my mother-in-law". How is Santhosh related to the girl?

- (1) Uncle (2) Husband (3) Brother (4) Father (5) None of these

Answer - (4)

Solution - Only daughter of mother-in-law = wife i.e. girl's mother is Santhosh's wife. Santhosh is the father of the girl.

Example - Pointing to a lady a man said, "the son of her only brother is the brother of my wife". How is the lady related to the man?

- (1) Mother's sister (2) Grandmother (3) Mother-in-law (4) Sister of the Man's father-in-law  
(5) None of these

Answer - (4)

Solution - Brother of wife = brother-in-law. Son of lady's brother is his brother-in-law. So the lady's brother is man's father-in-law i.e. the lady is the sister of man's father-in-law.

## **6. MATHEMATICAL OPERATIONS**

This section deals with questions on simple mathematical operations. Here, the four fundamental operations - addition, subtraction, multiplication and division and also statements such as 'less than', 'greater than', 'equal to', 'not equal to' etc. are represented by symbols different from the usual ones. The questions involving these operations are set using artificial symbols. The candidate has to substitute the real signs and solve the questions accordingly, to get the answer.

Example - If + means  $\div$ , - means  $\times$ ,  $\div$  means +, and  $\times$  means -, then  $48 + 12 \div 15 \times 2 - 5 = ?$

- (1) 8 (2) 18 (3) 9 (4) 3 (5) None of these

Ans: Putting the proper signs in the given expression, we get

$$48 \div 12 + 15 - 2 \times 5 = 4 + 15 - 10 = 9$$

Hence the answer is (3)



## **7. PUZZLE TEST**

This section comprises of questions put in the form of puzzles involving a certain number of items, be it persons or things. The candidate is required to analyse the given information, condense it in a suitable form and answer the questions asked.

**Example-** Read the following information carefully and answer the questions given below:

There are five friends - Shailendra, Keshav, Madhav, Ashish and Rakesh. Shailendra is shorter than Keshav but taller than Rakesh. Madhav is the tallest. Ashish is a little shorter than Keshav and a little taller than Shailendra.

1. Who is the shortest?

- (1) Rakesh (2) Shailendra (3) Ashish (4) Keshav (5) None of these

2. If they stand in the order of their heights, who will be in the middle?

- (1) Keshav (2) Rakesh (3) Shailendra (4) Ashish (5) None of these

3. If they stand in the order of increasing heights, who will be the second?

- (1) Ashish (2) Shailendra (3) Rakesh (4) Keshav (5) None of these

4. Who is the second tallest?

- (1) Shailendra (2) Keshav (3) Ashish (4) Rakesh (5) None of these

5. Who is taller than Ashish but shorter than Madhav?

- (1) Rakesh (2) Keshav (3) Shailendra (4) Data inadequate (5) None of these

**Solution-** Let us denote the friends by the first letter of each name, namely S, K, M, A and R. It is given that Shailendra is shorter than Keshav but taller than Rakesh. Therefore  $R < S < K$ . Ashish is a little shorter than Keshav and a little taller than Shailendra ie  $S < A < K$ . Madhav is the tallest. From this we get  $R < S < A < K < M$ .

1. (1) Rakesh is the shortest.

2. (4) Ashish is in the middle.

3. (2) In the order of increasing heights, Shailendra is the second.

4. (2) Keshav is the second tallest.

5. (2) Keshav is taller than Ashish but shorter than Madhav.

## **8. NUMBER SERIES**

In this category of questions, generally a long series of numbers is given. The candidate is required to find out how many times a number satisfying the condition specified in the question will occur.

Example - How many 9's are there in the following number sequence which are immediately preceded by 5 but not immediately followed by 3 ?

3 9 5 9 4 5 9 3 7 9 8 5 9 9 8 7 9 5 1 9 6 5 9 4 3 9 5 9 3 8

- (1) One (2) Two (3) Three (4) Four (5) More than four

The numbers satisfying the given conditions can be shown as follows (Given in BOLD).

3 9 5 **9** 4 5 9 3 7 9 8 5 **9** 9 8 7 9 5 1 9 6 5 **9** 4 3 9 5 9 3 8

So, the answer is (3)

**Ranking Test:** In this, generally the ranks of a person both from the top and from the bottom will be mentioned and the total number of persons is to be found.

Example - Radha ranks twentyfirst from the top and twentieth from the bottom in a certain examination. How many students are there in her class?

- (1) 40 (2) 41 (3) 42 (4) 45 (5) None of these

Clearly the whole class consists of

- (i) 20 students who have a rank higher than Radha
- (ii) Radha
- (iii) 19 students who have rank lower than Radha

i.e.  $(20 + 1 + 19) = 40$ . So, the answer is (1)

## 9. ALPHABET TEST

In this type of questions, certain words will be given. The candidate is required to put them in the order in which they would be arranged in a dictionary and then state the word which is placed in the desired place. For such questions, the candidate requires a basic knowledge of the ‘Dictionary Usage’. In a dictionary, the words are put in alphabetical order. The words beginning with a particular letter are again arranged in alphabetical order with respect to the second letter of the word and so on.

**Example -** Arrange the given words in alphabetical order and pick the one that comes first.  
(1) Cloud (2) Middle (3) Grunt (4) Mob (5) Chain

These words can be properly arranged as Chain, Cloud, Grunt, Middle, Mob. Clearly the first word is Chain. Hence the answer is (5)

**Example -** In the word ‘PARADISE’, how many pairs of letters are there which have as many letters between them in the word as in the alphabet.

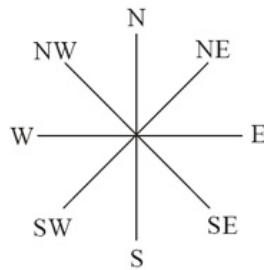
- (1) One (2) Three (3) Four (4) Two (5) None

Such pairs are PR, AE and AD. So the answer is (2).



## 10. DIRECTION SENSE TEST

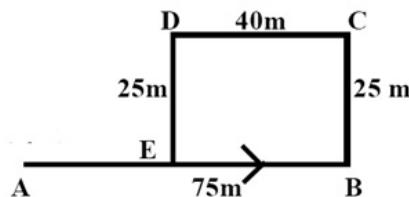
In this test, the questions consist of a sort of direction puzzle. A successive follow-up of direction is formulated and the candidate is required to ascertain the final direction or the distance between two points. The test is meant to judge the candidate's ability to trace, follow and sense the direction correctly.



The figure shows the four main directions (North N, South S, East E, West W) and the four cardinals (North east NE, North west NW, South east SE, South west SW) to help the candidates know the directions.

Example - Deepak starts walking straight towards east. After walking 75 m he turns to the left and walks 25 m straight. Again he turns to the left and walks a distance of 40m straight, again he turns to the left and walks a distance of 25 m. How far is he from the starting point?

- (1) 140 m (2) 35 m (3) 115 m (4) 25 m (5) None of these



Solution- (2) The movements of Deepak are as shown in the figure Clearly,  $EB = DC = 40$  m  
... Deepak's distance from the starting point A =  $(AB - EB) = (75 - 40) = 35$  metres

## **11. SEATING ARRANGEMENT**

In these kinds of problems, some people are sitting in a row or around a table in a desired formation. The conditions provide clues towards the actual arrangement and you have to make use of these clues to reach to the final arrangement.

Questions like seating arrangements are so easy to solve, we only need concentration and shortcut tricks to crack it. Let's see the types of seating arrangement questions. There are mainly two types of seating arrangement which is generally asked in bank and competitive exams. Row seating arrangements and Circular seating arrangement.

### **A. Row seating arrangements**

Shortcut and Tricks of row seating / sitting arrangements

Now here are the points to be remembered in row seating / sitting arrangements.



STEP 1 - Find and Draw a line of direction. (North, South, East, West)

STEP 1 - Note down right side and left side in the top of the line which you drawn

STEP 1 - Arrange the seats.

**Example** - A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?

Now we have a platform to put seating arrangements of any questions to be answered. Let's solve this question within 10 seconds. Draw a line and find out who is on the last, in this question "E" is the left end of the bench. Another placement would be of "A" which is right of "B" and "E".



## B. Circular Seating Arrangements

Shortcut and tricks of Circle seating / sitting arrangements -

STEP 1- Draw a circle, that's it.

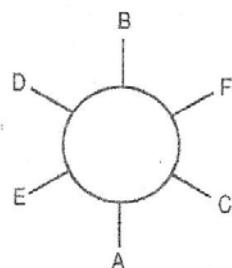
STEP 2- Find out who is on right side and who is on left side of.

STEP 3- Put them all together and you will find your answer.

**Example** - Six persons A, B, C, D, E and F are sitting around a circular table facing the centre. C is sitting exactly between A and F. B is sitting two places to the left of E. D is sitting two places to the right of F. Between which two persons is D sitting?

Start with any fixed position. Statement i does not give any fixed position since the order could be A-C-F or F-C-A. Starting with ii, we will have the positions of B and E. Now, C has to be in between A and F in such an order that D is two places to the right of F. The order in the clockwise direction has to be F-C-A, else A will fall 2 places to the right of F.

Thus we will have the arrangement as shown below.



## **12. COMBINATIONS**

Here, the elements in some groups are to be combined, as per the given conditions. In the following example, the groups are of (a) Men, (b) Professions and (c) Musical Instruments. As per the conditions, these are mixed and matched.

**Example:**

- i. Five gentlemen (Mr. Ajay, Mr. Bijay, Mr. Vinay, Mr Sanjay and Mr. Akshay) are practising five different professions (Engineering, Medical, Law, Chartered Accountancy and Architecture). Each one can play only one of the five different instruments: Tabla, Violin, Sarod, Sitar and Flute.
- ii. Mr Ajay is a Doctor and can play Sarod.
- iii. The Sitarist is not an Engineer.
- iv. Mr Vinay and Mr Bijay are not Architects and Vinay cannot play Tabla.
- v. Mr Bijay can play Violin.
- vi. Mr Akshay is a Lawyer and can play Flute.

**Which instrument does Mr. Vinay play? AND What is the profession of Mr. Bijay?**

**Solution:**

Let us represent the three groups in a table. By taking the group of gentlemen as the base, because most of the information given is with regard to the gentlemen, we will try filling in the other details/ elements of the other two groups in the table, as shown below.

- |           |  |
|-----------|--|
| From ii,  | we get the combination Ajay-Doctor-Sarod.      |
| From iii, | we get to know that Sitar ≠ Engineer.          |
| From iv,  | (Vinay, Bijay) ≠ Architects and Vinay ≠ Tabla. |
| From v,   | Bijay = Violin.                                |
| From vi,  | we get the combination Akshay - Lawyer -Flute. |

Putting the above details in the table as shown below.

Gentleman	Professional	Instrument
Ajay	Doctor	Sarod
Bijay	X Architect	Violin
Vinay	X Architect	X Tabla
Sanjay		
Akshay	Lawyer	Flute

Now, here we observe that neither Bijay nor Vinay is the Architect; hence the remaining person Sanjay is the Architect. Similarly, Sanjay plays Tabla and hence Vinay plays Sitar. This means that Bijay is the Engineer (from iii) and Vinay is the CA. We get the final arrangement as shown below:

Gentleman	Professional	Instrument
Ajay	Doctor	Sarod
Bijay	Engineer	Violin
Vinay	CA	Sitar
Sanjay	Architect	Tabla
Akshay	Lawyer	Flute

Now, based on the above table, Mr. Vinay plays Sitar AND Mr. Bijay is the Engineer.



## **13. SYLLOGISM**

***Following are the main rules for solving Syllogism Problems***

Rule-1. All+All=All

Rule-2. All+No=No

Rule-3. All+Some=No Conclusion

Rule-4. Some+All=Some

Rule-5. Some+No= Some Not

Rule-6. Some+Some= No Conclusion

Rule-7. No +All = Some Not(Reversed)

Rule-8. No+Some=Some Not (Reversed)

Rule-9. No+No=No Conclusion

Rule-10. Some Not /Some Not Reversed +Anything = No Conclusion

***If u want to convert any conclusion in Possibility***

Rule-11. If - All A are B then we can say - Some B are Not A is a Possibility

Rule-12. If - Some B are Not A then we can say - All A are B is a Possibility

Rule-13. If - Some A are B then we can say - All A are B is a Possibility All B are A is a Possibility

Rule-14. All  $\Leftrightarrow$  Some Not Reversed

Rule-15. Some  $\Rightarrow$  All

Rule-16. NO Conclusion = Any Possibility is true

***Implications (In case of Conclusion from Single Statement)***

All  $\Rightarrow$  Some

that means if All A are B then Some B are A is true

Some  $\Leftrightarrow$  Some

that means if Some A are B then Some B are A is true

No  $\Leftrightarrow$  No

that means if No A is B then NO B is A is true

There are Two Major Ways to solve syllogism questions –

***Cross Cancellation and Vertical Cancellation***

**Example 1. Cross Cancellation**

Statements

1. All forces are Energies

2. All Energies are Powers

3. No Power is Heat

Conclusions

1. No Energy is Heat

2. Some Forces being heat is Possibility

**Solution** - Lets take 1<sup>st</sup> conclusion, we have to make relation between Energy and Heat so we will take statement 2 and 3

All Energies are Powers

No Power is Heat

This will be called Cross Cancellation , We have cancelled Power from Power so we have left with (ALL+NO) Energies is/are Heat , and that is No Energy is Heat So Conclusion **First is TRUE.**

In second statement we have Force and Heat so we will need to make relation between force and heat. For this we need to take all 3 statements

All forces are Energies

All Energies are Powers

No Power Is Heat

[All+All=All ; All+No=No]

Now we have left with ((All+All)+NO) Forces is/are Heat and that is NO Force is Heat . We don't have any rule to convert this statement is Possibility so **second conclusion is FALSE**

### Example 2 - Vertical Cancellation

Statements

1. Some Mails are Chats
2. All Updates are Chats

Conclusion

1. All Mails Being Update is a Possibility
2. No Update is Mail

**Solution -** Lets take 1<sup>st</sup> Conclusion "All Mails Being Update is a Possibility" that means we have to make relation between Mails and Updates

Some Mails are Chats

All Updates are Chats

This is called vertical cancellation. In this case direction of adding first phrase will be reversed i.e In Above example the conclusion will be (All+Some) Updates is/are Mails = No Conclusion.

IF we get No Conclusion in case of Possibility then according to **Rule No 16** possibility case will be definitely true . So Conclusion 1 follows and Conclusion 2<sup>nd</sup> Don't .