

# Machine Input Output Short Tricks

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## Machine input output short Tricks & Questions with solutions

Input-output are asked questions in various competitive examinations like banking recruitment exams and exams for management entrance. They are not very tough stuff but take a good deal of time to be solved or sometimes students do not take attempt to solve them because of time consuming impression of such type of questions. But proper understanding of the subject makes you believe that such problems are not as tough and time consuming as they seem.

### Possible ways of arrangements

1. Word arrangement from left side.
2. Word arrangement from right.
3. Word arrangement from the left-right alternate.
4. Arrangement in increasing or decreasing order.
5. Number arrangement from left right alternate.
6. Arrangement of words and numbers simultaneously.
7. Arrangement based on the number of letters in words:

Example-

Input : Bat Cat Good Other Have Cake

Step 1 : Bat Other Good Cat Have Cake

Step 2 : Bat Other Have Cat Good Cake

Step 3 : Cake Other Have Cat Good Bat

Step 4 : Cake Cat Have Other Good Bat

Step 5 : Cake Cat Good Other Have Bat

Step 6 : Bat Cat Good Other Have Cake

Solution:-

This can be understood by making them equivalent to number like :

Bat = 1,

Cat = 2,

Good = 3,

Other = 4,

Have = 5,

Cake = 6

INPUT	1 Bat	2 Cat	3 Good	4 Other	5 Have	6 Cake
2 and 4 are interchanged						
STEP-1	1 Bat	4 Cat	3 Good	2 Other	5 Have	6 Cake
3 and 5 are interchanged						
STEP-2	1 Bat	4 Cat	3 Have	2 Other	5 Good	6 Cake
1 and 6 are interchanged						
STEP-3	6 Cake	4 Cat	5 Have	2 Other	3 Good	1 Bat
2 and 4 are interchanged						
STEP-4	6 Cake	2 Other	5 Have	4 Cat	3 Good	1 Bat
3 and 5 are interchanged						
STEP-5	6 Cake	2 Other	3 Good	4 Cat	5 Have	1 Bat
1 and 6 are interchanged						
STEP-6	1 Bat	2 Other	3 Good	4 Cat	5 Have	6 Cake

Example-

Input: shop 17 table 20 53 oven desk 39

Step 1: 17 shop table 20 53 oven desk 39

Step 2: 17 table shop 20 53 oven desk 39

Step 3: 17 table 20 shop 53 oven desk 39

Step 4: 17 table 20 shop 39 53 oven desk

Step 5: 17 table 20 shop 39 oven 53 desk

Step 5 is final step and we can observe from the final step that

**Question :- How many steps are required to complete the below input.**

**Input:** 89 blind 32 goal house 61 12 joy

**Solution :-** We can see that-

- Numbers are arranged in increasing order
- Alphabets are arranged in reverse alphabetical order

INPUT	1	2	3	4	5	6	7	8
	89	Blind	32	Goal	House	61	12	Joy
STEP-1	7	1	2	3	4	5	6	8
	12	89	Blind	32	Goal	House	61	Joy
STEP-2	7	8	1	2	3	4	5	6
	12	Joy	89	Blind	32	Goal	House	61
STEP-3	7	8	3	1	2	4	5	6
	12	Joy	32	89	Blind	Goal	House	61
STEP-4	7	8	3	5	1	2	4	6
	12	Joy	32	House	89	Blind	Goal	61
STEP-5	7	8	3	5	6	1	2	4
	12	Joy	32	House	61	89	Blind	Goal
STEP-6	7	8	3	5	6	4	1	2
	12	Joy	32	House	61	Goal	89	Blind

The general instruction of what a machine input-output question says are:

“When a word and number arrangement machine is given an input line words and number, it arranges them following a particular rule. The following is the illustration of input and re-arrangement”

Example: Input: name 37 11 is his 42 Khan 28

Step I: is name 37 11 his 42 Khan 28

Step II: is 42 name 37 11 his Khan 28

Step III: is 42 his name 37 11 Khan 28

Step IV: is 42 his 37 name 11 Khan 28

Step V: is 42 his 37 Khan name 11 28

Step VI: is 42 his 37 Khan 28 name 11

VIth step is the last step.

The last step is the final output the machine.

So what has happened in this example of VI Steps?

Input is given to you and it is simplified in the subsequent steps. By simplified we mean they've applied a certain logic, if you know questions of series, the series is made on a certain logic and by analysing that logic you get to know the next value in that series. Similarly, in questions of Machine Input Output, you have to analyse the given Input and its subsequent steps and understand or find out the logic behind it. It means



your job is to identify the logic through which the input-output machine has transformed the input to output and you have to apply the same logic in the subsequent step of questions asked. And the last step is the final output.

***FIND THE LOGIC!!!***

✔ Compare quickly the Input and the final step and try to deduce the logic through which the machine has produced the output.

**Example:** Input: 96 amber cola 84 new 6

Step I: 6 96 cola 84 new amber

Step II: 6 84 96 new cola amber

Step II is the final output

Here we can see that the logic applied is arranging the numbers in ascending order (right to left) and arranging the alphabets in alphabetical order (left to right).

✔ Observe the happenings in the subsequent step. Is the machine shifting only 1 item at a time or is it shifting two or more?

**Example:** Input: 96 amber cola 84 new 6

Step I: 6 96 cola 84 new amber

Step II: 6 84 96 new cola amber

Step II is the final output

In this example, the machine is shifting two items at a time, i.e. a number and a word in each step.

✔ Observe the direction in which shifting has taken place- left to right, right to left.

**Example:** Input: 96 amber cola 84 new 6

Step I: 6 96 cola 84 new amber

Step II: 6 84 96 new cola amber

Step II is the final output

Here the numbers are arranged from left to right direction and words are arranged in right to left direction

✔ Quickly and carefully analyse and try to discriminate according to the first letter of given words if they are in alphabetical sequence or if there is any particular arrangement related to vowels and consonants and analyse the numbers too.

**Example:** Input: assure 7 new 2 email 16 demand 3 quit 12 20 urban

Step I: assure 2 7 new email 16 demand 3 quit 12 20 urban

Step II: assure 2 7 new email 16 3 quit 20 urban demand 12

Step III: assure 2 email 3 7 new 16 quit 20 urban demand 12

Step IV: assure 2 email 3 7 quit 20 urban demand 12 new 16

Step V: assure 2 email 3 urban 7 quit 20 demand 12 new 16

Step VI: assure 2 email 3 urban 7 demand 12 new 16 quit 20

Step VI is the final output.

**Logic:** Here in each step a number and a word are arranged in pairs of Vowel+ Prime and Consonant + Composite. The words starting with vowels are arranged from left to right along with a prime number in ascending order. The words starting with a consonant are arranged from left to right (on the right end) in the next step along with a composite number in ascending order.

Example:

1. A word arrangement machine when given an input of words, rearranges them following a particular rule in each step. The following is an illustration of input and steps rearrangement.

INPUT: Camp Rule Show Mouth Fast

STEP I: Show Camp Rule Mouth Fast

STEP II: Show Rule Camp Mouth Fast

STEP III: Show Rule Mouth Camp Fast

STEP IV: Show Rule Mouth Fast Camp

This is the final arrangement and STEP IV is the last step for this input.

What should be the last step of the following input?

INPUT: Coal Steer Brief Nap Blast Cry

Explanation: The given rearrangement has a pattern that can be followed from the input step to the final step, which is Step IV. Observe carefully. The rearrangement follows the following patterns:

1. The rearrangement is taking place from left to right.
2. The rearrangement is taking place one word at a time.
3. The rearrangement is done on the basis of decreasing alphabetic order.

NOTE: To understand the pattern, often it is sufficient to look at the input, 1<sup>st</sup>, 2<sup>nd</sup> and final steps of the arrangement.

Now if we apply the same pattern rules to the second input given, we can immediately tell what the output (final step after rearrangement) would be:

INPUT: Coal Steer Brief Nap Blast Cry

OUTPUT: Steer Nap Cry Coal Brief Blast

TYPES OF QUESTIONS

This was a simple example involving only words. Some questions come with only numbers. Others come as a mix of words and numbers. More complicated ones may even involve symbols. But for the sake of the Bank PO exams, it is important to concentrate on the questions that are mixes of words and numbers. Based on the logic used behind the rearrangement, we can classify these types of questions as:

**A. Rearrangements based on Ordering:**

Words are arranged alphabetically (forward or reversed) as per their positions in the dictionary while numbers are arranged in ascending/descending order.

Both words and numbers could be arranged individually or simultaneously in each step. The rearrangement can start from the leftmost side or the rightmost side of the sentence and sometimes even simultaneously from both the ends. The rearrangement could either start with a word or a number. Whatever the finer details may be, in these kinds of rearrangements, one or two words/numbers are shifted at a time, without changing the order of the remaining words/numbers.

Example:

INPUT: 71 cowboy dye zirconium 92 45 66 bandit  
 STEP I: 45 71 cowboy dye 92 66 bandit zirconium  
 STEP II: 45 66 71 cowboy 92 bandit dye zirconium  
 STEP III: 45 66 71 92 bandit cowboy dye zirconium

Here, Step III is the final step and the rearrangement is done simultaneously from both front and back ends. The rearrangements are done thusly: the numbers are arranged in ascending order one by one from the left end, with the next biggest number being added to the right of the previous number. The words are arranged in descending order one by one from the right end, with the last word in the dictionary going to the rightmost end, and earlier entries in the dictionary getting added in subsequent steps to the left of that word.

**B. Rearrangements based on Interchanging the Positions of Words and Numbers:**

Specific positions are selected and the positions of only those words/numbers are exchanged. The positions of all others remain unchanged.

Example:

INPUT: 102 bobby indica 49 diamond 22 gas figure 75 20  
 STEP I: 20 bobby indica 49 diamond 22 gas figure 75 102

'bobby' is already arranged, so we will move on to the next element.

Step II: 20 bobby 22 49 diamond indica gas figure 75 102

Step III: 20 bobby 22 diamond 49 indica gas figure 75 102

Step IV: 20 bobby 22 diamond 49 figure gas indica 75 102

Step V: 20 bobby 22 diamond 49 figure 75 indica gas 102

Step VI: 20 bobby 22 diamond 49 figure 75 gas indica 102

Step VII: 20 bobby 22 diamond 49 figure 75 gas 102 indica

Step VII is the final step of the input. The underlined words are used to indicate the words that will be interchanged in the each subsequent step.

**C. Rearrangements based on Mathematical operations:**

Some mathematical operation (like squaring the number, adding the digits within the number, some common number added/subtracted/multiplied/divided to each number etc.) is applied on the numbers in each step.

Example:

INPUT: 17 25 92 88 19 52  
 STEP I: 10 25 92 88 19 50  
 STEP II: 10 20 92 88 10 50  
 STEP III: 10 20 90 80 10 50



Step III is the final step. Clearly in this example, the unit's digits of the left most and right most number are simultaneously being subtracted from the numbers themselves. This is followed by the number to the right of the left most one, and to the left of the right most one.

### TIPS ABOUT 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. Number of words/digits arranged until the present step is greater than or equal to the present step number.
3. If input is not given we cannot determine the previous step from given step number or we cannot determine input from given step number.

### HOW TO SOLVE

These questions can be solved by the following methods:

1. We can solve these questions by writing each step of the given input on paper.

Remember – do not write the complete word each time; to save time, just write the first letter or however many letters of each word you need to uniquely identify it.

#### Example:

Input: 32 pure girl beautiful 49 63 78 random rickshaw

Label: 32 P G B 49 63 78 Ra Ri

2. We could go for a shorter method where instead of writing each step again and again we number each word/number of the input as per their position in each step. So if the arrangement follows a “number-descending-from-left-and-letters-ascending-from-right-alternately-pattern”, we need to number these as follows:

#### Example:

INPUT: 32 pure girl beautiful 49 63 78 rickshaw random

STEP I: 78 32 pure girl beautiful 49 63 rickshaw random

STEP II: 78 32 pure girl beautiful 49 63 random rickshaw

STEP III: 78 63 32 pure girl beautiful 49 random rickshaw

STEP IV: 78 63 32 girl beautiful 49 pure random rickshaw

STEP V: 78 63 49 32 girl beautiful pure random rickshaw

STEP VI: 78 63 49 32 beautiful girl pure random rickshaw

Clearly the pattern is, 'send the biggest number left'. In the next step, send the highest word right.

Continue the pattern till the input is completely rearranged.

To minimize the steps, let us look at all the elements on the basis of their positions. We only need to see the first two steps and the output to figure out which number/word goes where. The order in which the element gets rearranged is the number each element gets.

INPUT: 32 pure girl beautiful 49 63 78 rickshaw random

LABEL: 7 6 8 9 5 3 1 2 4

Since '78' is the first element that will be rearranged according to the pattern, it will be labeled 1. The next element to be rearranged will be 'rickshaw'. So it will be labeled 2. The next element to be rearranged will be the next highest number. So without even writing out the remaining steps you could label '63' as 3. And similarly 'random' would become 4. And so on and so forth.

While rearranging by this method, keep the following four cases in mind:

Case 1: When we go in single direction, i.e. words/digits are arranged either from left to right or right to left. In this case, auto filling of words/digits could take place because some numbers/words arrange

themselves. So how do we go about numbering our elements in this case? For convenience's sake, let us think of all the elements being arranged left to right.

1. Number each word/number in the manner shown above as per their order of arrangement in accordance with the pattern depicted in the question. Think of it as a step-by-step process. After each numbering, you need to stop and check.
2. After you identify the first element, number it (1). Then identify the second element. Check all the elements to its left. Have you numbered all of them yet? If yes, then number this one (1a). If not, then number it (2). Then identify the third element. Check all the elements to its left. Have you numbered all of them yet? If yes, then this does not get a new step number. If no, then it gets a fresh step number. And the process continues. Here is an illustration.

**Example:**

INPUT:    goat   out   34   59   set   75   peon   28

STEP I:    28   goat   out   34   59   set   75   peon

STEP II:   28   set   goat   out   34   59   75   peon

STEP III:  28   set   34   goat   out   59   75   peon

STEP IV:  28   set   34   peon   goat   out   59   75

STEP V:   28   set   34   peon   59   goat   out   75

STEP VI:  28   set   34   peon   59   out   goat   75

STEP VII: 28   set   34   peon   59   out   75   goat

Step VII is the last step of the input

Q. Following the above pattern, how many steps will be required to complete the arrangement for the below given input?

84 out sown even 35 54 around 46

Solution:

Input: In the given illustration, the words/digits are being arranged in the following manner: the lowest digit is arranged at leftmost of the sentence and all others are shifted to the right side as it is and in second step, highest word of dictionary is arranged right of the previously arranged number and so on. The next higher digit and next highest word is arranged in subsequent pair of steps.

Here is how you would go about numbering these elements. Note that underlined elements represent those ones to the left that you haven't numbered yet.

First:	84	out	sown	even	35	54	around	46
					1			
Second:	84	out	sown	even	35	54	around	46
			2		1			
Third:	84	out	sown	even	35	54	around	46
			2		1			3
Fourth:	84	out	sown	even	35	54	around	46
		4	2		1			3
Fifth:	84	out	sown	even	35	54	around	46
		4	2		1	5		3
Sixth:	84	out	sown	even	35	54	around	46
		4	2	6	1	5		3
Seventh:	84	out	sown	even	35	54	around	46
	6a	4	2	6	1	5		3
Eighth:	84	out	sown	even	35	54	around	46
	6a	4	2	6	1	5	6b	3

Here, 6a and 6b are not given further values at the time of filling, as all elements to the left of these two have been filled already. Hence, these two entities are arranged automatically in step 6. In addition, step 6 is the last step of the input, so six steps are required to complete the arrangement.

NOTE: Now whichever step is asked in the question, take the part of the solution up to the required step number to get the answer. Arrange the numbered elements according to their labels, and shift the remaining to the right, while leaving their order unchanged.

NOTE: If the rearrangement is to be done from the right, the process of checking would be reversed. Now instead of checking to the left, you would have to check to the right to see if there are any unnumbered elements.

Case 2: When we go in both directions, with elements filling in from the inside, auto filling could still take place. So we need to take that into account when numbering. Based on which direction the element goes, it is numbered with an L (left) or an R (right) attached to it. When considering items labeled with L, check to see if there are any unlabeled elements to its left and when considering items labeled with R, check to see if there are any unlabeled elements to its right.

Example:

INPUT: 19 puppy opinion 91 peanuts lovely 7 38

STEP I: 7 19 opinion 91 peanuts lovely 38 puppy

STEP II: 7 19 38 opinion 91 lovely peanuts puppy

STEP III: 7 19 38 91 lovely opinion peanuts puppy

Step III is the final step of the rearrangement.

Q. Following the above pattern, how many steps will be required to complete the arrangement for the below given input?

goat out 34 59 set 75 peon 28

Solution:

Here is how you go about numbering these elements. Note that underlined elements represent those ones to the left of the 'L' elements that you haven't numbered yet. And the italicized elements represent the ones to the right of the 'R' elements that you haven't numbered yet.

1R 1L

2R    2L            1R            1'R    1L

3R    2R    2L    3L    1R    3'L    1'R    1L

**Solution:**

1R 1L

2R    2L                    1R                    1'R    1L

3R    2R    2L    3L    1R    3'L    1'R    1L

**1L      2L                          2R    1'R    1R**

Case 3: When we go in both directions with elements filling in from the outside, i.e. we place digits/numbers left to the left most word/ right to the right most word. In this case, no auto filling of digits/numbers takes place i.e. each word is numbered separately. Keep in mind the following:

1. Number of pairs of words/digits is equal to the number of steps.
2. Identify the pattern in the input rearrangement. Then number the elements going left in their pattern order with 1L, 2L, 3L and so on. And number the elements going right in their pattern order with 1R, 2R, 3R and so on.
3. There is no auto filling, so there is no need to check step by step. The numbering can be done in one go.

Example:

INPUT: toy 45 17 round ass 95 74 36 wiser jet

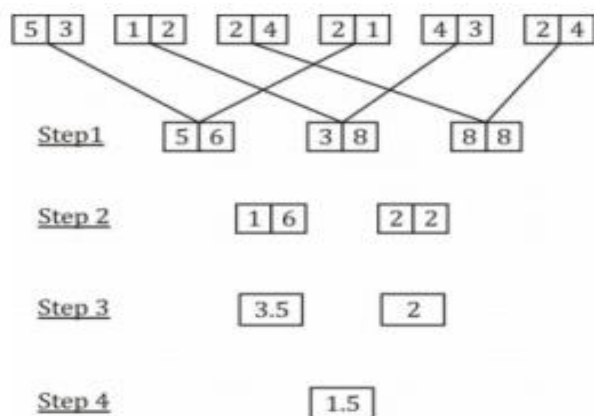
STEP I: 17 toy 45 round 95 74 36 wiser jet ass

STEP II: 36 17 toy 45 round 95 74 wiser ass jet

STEP III: 45 36 17 toy 95 74 wiser ass jet round

STEP IV: 74 45 36 17 95 wiser ass jet round toy

STEP V: 95 74 45 36 17 ass jet round toy wiser

*STEP V is the last step of the input.**Q. Which is the 5<sup>th</sup> letter from right side in step V of the following input?**Input: 87 when show 14 35 new beat ink 51 28**Label: 5L 5R 4R 1L 3L 3R 1R 2R 4L 2L**Solution: In the given illustration, the words/digits being arranged in the following manner: in the first step, lowest digit and lowest word in dictionary are placed at left most and right most side respectively, of the string and all other entities are placed as it is. Then in the 2<sup>nd</sup> step, next lowest digit and word are arranged to the left and right of the previously arranged digit and word simultaneously and so on.**Therefore, arrangement is from left to left + right to right.**Here L1, L2 so on are used to represent left side and R1, R2 so on to represent right side.**Hence step 5 of the input is**Step 5: 87 51 35 28 14 beat ink new show when**So 5<sup>th</sup> from the right side is 'beat'**NOTE: In this case 5<sup>th</sup> from right is not R5, but R1. So be careful while answering this type of question.**Count backwards from the highest number label of that step in such cases.**Case 4: In mixed form i.e. both case 1 and 2 are used in one input then both the rules are used for each side**NOTE: If pairing of words and digits/words and words/ digits and digits is observed i.e. both are placed simultaneously in each step and in case if one is auto filled & other is not then no step is skipped.**Directions : Study the given information carefully**An input-output is given in different steps. Some mathematical operations are done in each step. No mathematical operation is repeated in next step.**As per the rules followed in the steps given above, find out in each of the following questions the appropriate step for the given input.*

4	2	5	1	2	9	3	2	7	1	1	4
---	---	---	---	---	---	---	---	---	---	---	---

**SOLUTION:-**

**step-I**-both the numbers of 1st block is written as, 1st number of block-1 of the Input is multiplied with 2nd no. of block-4 of the Input same as 2nd number of block-1 is multiplied with 1st number of block-4. This process is same for Block-2 and Block-3 in step-1.

**step-II**, All 1st digit of each block is added and that sum is written in 1st block and all 2nd digit of each block is added and that sum is written as 2nd block.

**step-III**, Half of the addition of 1st and 2nd digit of each block.

**Step- IV**, Subtraction of both numbers of Step-3.

So,

INPUT: 42 51 29 32 71 14

Step-1: 86 57 89

Step-2: ....21....22....

Step-3: ....1.5....2....

Step-4: .....0.5.....

**Example:-**

Directions : Study the given information carefully

An input-output is given in different steps. Some mathematical operations are done in each step. No mathematical operation is repeated in next step.

3	3	2	1	6	8	2	3	9	3	1	1
---	---	---	---	---	---	---	---	---	---	---	---

Step 1:

9	6	6	9	6	8
---	---	---	---	---	---

Step 2:

2	1	2	3
---	---	---	---

Step 3:

5	15
---	----

Step 4:

.75
-----

Input

2	2	3	2	2	6	1	4	2	3	1	1
---	---	---	---	---	---	---	---	---	---	---	---

**SOLUTION:-**



*In step 1 –*

Multiplication between first & fourth box. (3/3) of first box with (2/3) of fourth box.

Multiply of first number of first box with second number of fourth box ( $3 \times 3 = 9$ )

Multiply of second number of first box with first number of fourth box ( $3 \times 2 = 6$ )

So on .....second box & fifth box , third box & sixth box

*In step 2-*

Sum of first digit in all box & sum of second digit of all box

$$9 + 6 + 6 = 21, 6 + 9 + 8 = 23$$

*In step 3-*

In every box, second digit is divided by first number .

$$1/2 = .5 \quad 3/2 = 1.5$$

*In step 4-*

Both numbers in two boxes are multiply

$$.5 \times 1.5 = .75$$

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

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

Input: some 31 tower down 32 29 what 45 ice 52 ice 52 75 all

Step I: what 75 some 31 tower down 32 29 45 ice 52 all

Step II: what 75 tower 52 some 31 down 32 29 45 ice all

Step III: what 75 tower 52 some 45 31 down 32 29 ice all

Step IV: what 75 tower 52 some 45 down 32 31 29 ice all

Step V: what 75 tower 52 some 45 down 32 all 31 29 ice

Step VI: what 75 tower 52 some 45 down 32 all 31 ice 29

And Step VI is the last step of the above input. As per the rules followed in the above steps, find out the appropriate steps for the above input.

Input: equal 54 inter 83 out town 25 79 under close 57 price 12

1). How many steps will be required to complete the rearrangement?

- a. six
- b. five
- c. four
- d. seven
- e. None of these

2). Which of the following would be at the seventh position from the right in step IV?

- a. equal
- b. 57
- c. 54
- d. Inter
- e. None of these

3). Which step number would be the following output? Town 83 price 79 close 57 equal 54 inter under 25 out 12

- a. Step VI
- b. Step III
- c. Step IV
- d. There is not such step
- e. None of these

4). If in the last step all the words get rearranged in alphabetical order, which of the following words will remain at its original position?

- a. inter
- b. price
- c. out
- d. under
- e. None of these

5). How many words/numbers are there between '79' and 'inter' in step II?

- a. Four
- b. Three
- c. None
- d. Two
- e. None of these

Directions (Q.6-10): Study the following information carefully to answer the given questions.

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

Input: 27 cookies 63 71 queen word 29 out favorite 67

Step I: word 27 cookie 63 71 queen 29 out favorite 67

Step II: word 29 27 cookie 63 71 queen out favorite 67

Step III: word 29 out 27 cookie 63 71 queen favorite 67

Step IV: word 29 out 67 27 cookie 63 71 queen favorite

Step V: word 29 out 67 queen 27 cookie 63 71 favorite

Step VI: word 29 out 67 queen 71 27 cookie 63 favorite

Step VII: word 29 out 67 queen 71 cookie 27 63 favorite

Step VIII: word 29 out 67 queen 71 cookie 63 27 favorite

Step IX: word 29 out 67 queen 71 cookie 63 favorite 27

And step IX is the last step of the above input. As per the rules followed in the above steps, find out the appropriate step for the above input.

Input: 49 association 25 31 glass 59 countries 23 state hoodooing 33 cities

6). Which of the following is the fourth element from the left end of the Step V?

- a. state
- b. 31
- c. association
- d. countries
- e. None of these

7). How many words are there between '59' and '33' in Step IV?

- a. Three
- b. One
- c. Two
- d. One
- e. None of these

8). How many steps will be required to complete the given input?

- a. Eight
- b. Seven
- c. Six
- d. Nine
- e. None of these

9). Which of the following comes between 'cities' and '33' in the last step?

- a. 49, hoodooing, 33
- b. 59, countries, 49, hoodooing
- c. Association, Hoodooing, 59
- d. Countries, 49
- e. None of these

10). Which of the following is second to the left of 'countries' in Step VI?

- a. hoodooing
- b. 59
- c. cities
- d. association
- e. None of these

Directions (Q. 11-15): Study the given information and answer the following questions.

A word and number arrangement machine when given an input line of word and numbers rearranges them following a particular rule. The following is an illustration of input and its rearrangement.

Input: economy on 16 is cool hot begin 14 but new again 24 Step I: begin 14 economy on 16 is cool hot but new again 24 Step II: begin 14 again 24 economy on 16 is cool hot but new Step III: begin 14 again 24 on 16 economy is cool hot but new Step IV: begin 14 again 24 on 16 economy cool is hot but new Step V: begin 14 again 24 on 16 economy cool new is hot but Step VI: begin 14 again 24 on 16 economy cool new hot is but Step VII: begin 14 again 24 on economy cool new hot but is Step VIII: begin 14 again 24 on 1 6 5 3 1 4 8 2 9

Step VIII is the last step of the rearrangement. As per the rules followed in the above steps, find out in each of the following questions the appropriate step for the following input.

Input: garden heat 36 in 28 below normal in 23 over

11). Which of the following would be the last step of the arrangement?

- a. in 23 heat 36 in 28 normal garden below over
- b. in 36 heat 28 in 23 1 4 7 2 1 5
- c. in 23 heat 36 in 28 7 1 4 1 5 2
- d. none of these

12). Which step number will be the following output? 'in 23 heat 36 in 28 garden below normal over'

- a. step III
- b. step IV
- c. step VI
- d. step V
- e. there will be no such step

13). In step IV which of the following words/ numbers would be at 4th position from the right?

- a. over
- b. 36
- c. below
- d. normal
- e. none of these

14). Which of the following steps will be the last but one step of the rearrangement?

- a. step IV
- b. step V
- c. step VI
- d. step VII
- e. none of these

15). In step III if 'in' is related to '28', '23' is related to 'garden' and 'heat' is related to 'below' in a certain way, which of the following would '36' be related to in the same pattern?

- a. in
- b. normal
- c. over
- d. 23
- e. none of these

Direction (Q. 16-21): Read the given information and answer the questions.

When a word and number arrangement machine is given an input line of words and numbers it arranges them following a particular rule. The following is an illustration of input and rearrangement. (all the numbers are two – digit numbers)

Input: left 46 burn 82 95 part 72 vibe bold 49 mint 59

Step I. 95 left 46 burn 82 part 72 vibe 49 mint 59 bold

Step II. 82 95 left 46 part 72 vibe 49 mint 59 bold burn

Step III. 72 82 95 46 part vibe 49 mint 59 bold burn left

Step IV. 59 72 82 95 46 part vibe 49 bold burn left mint

Step V. 49 59 72 82 95 46 **vibe** **bold** burn left mint part

Step VI. 46 49 59 72 82 95 **bold** burn left mint part **vibe**

Step VI is the last step of the above arrangement as the intended output of arrangement is obtained.

As per the rule followed in the given steps, find the appropriate steps for the given input. Input: 29 cone 42 pale fear 39 67 fame 32 weld 77 turn.

16). Which step number is the following output? 77 29 42 pale fear 39 67 fame 32 weld turn cone

- a. I
- b. III
- c. VI
- d. IV
- e. there is no such step

17). What is the position of 'fame' from the right of '67' in the second – last step?

- a. eighth
- b. third
- c. fifth
- d. ninth
- e. seventh

18). Which of the following is the fifth element to the right of "29" in step II ?

- a. cone
- b. turn
- c. fame
- d. 39
- e. 32

19). How many elements are there between '77' and 'weld' in the last step?

- a. five
- b. three
- c. one
- d. four
- e. two

20). In step II, which element(s) appear(s) exactly between 'pale' and '32'?

- a. only 'weld'
- b. both 'weld' and '42'
- c. both 'fear' and '39'
- d. only 'fear'
- e. only '39'

21). Which of the following represents the first two and the last two elements in the third last step?

- a. 32, 39, pale, weld
- b. 39, 42, fear, pale
- c. 29, 32, pale, turn
- d. 29, 32, pale, weld
- e. 32, 39, fear, pale

### Solutions

Question (1-5):

The machine rearranges a word along with a number in each step. First it rearranges words starting with a consonant in reverse alphabetical order and then words starting with a vowel in alphabetical order. Numbers are arranged in descending order.

Input: equal 54 inter 83 out town 25 79 under close 57 price 12  
Step I: town 83 equal 54 inter out 25 79 under close 57 price 12  
Step II: town 83 price 79 equal 54 inter out 25 under close 57 12  
Step III: town 83 price 79 close 57 equal 54 inter out 25 under 12  
Step IV: town 83 price 79 close 57 equal 54 inter 25 out under 12  
Step V: town 83 price 79 close 57 equal 54 inter 25 out 12 under

1. Option: B

2. Option: A

3. Option: D

4. After arranging it in alphabetical order: close 83 equal 79 inter 57 out 54 price 25 town 12 under. Hence 'under' will remain at its original position.

Option: D

5. Option: D

Question (6-10):

The machine rearranges the words and the numbers in alternate step from left to right. The words are arranged according to the numbers of vowels in the word in ascending order. While for the numbers, first the prime numbers are arranged in ascending order and then the composite numbers are arranged in descending order.

Input: 49 association 25 31 glass 59 countries 23 state hoodooing 33 cities  
Step I. glass 49 association 25 31 countries 23 state hoodooing 33 cities  
Step II. glass 23 49 association 25 31 59 countries state hoodooing 33 cities.  
Step III. glass 23 state 49 association 25 31 59 countries hoodooing 33 cities  
Step IV. glass 23 state 31 49 association 25 59 countries hoodooing 33 cities  
Step V. glass 23 state 31 cities 49 association 25 59 countries hoodooing 33  
Step VI. glass 23 state 31 cities 59 49 association 25 countries hoodooing 33  
Step VII. glass 23 state 31 cities 59 countries 49 association 25 hoodooing 33  
Step VIII. glass 23 state 31 cities 59 countries 49 hoodooing association 25 33  
Step IX. glass 23 state 31 cities 59 countries 49 hoodooing 33 associations 25

6. Option: B

7. Option: C



8. Option: D

9. Option: B

10. Option: D

Questions (11-15):

The machine first rearranges words which are along with numbers according to the ascending order of sum of the digits of the numbers. And then remaining words are arranged in descending order of the length, then they are arranged in reverse alphabetical order.

In the last step, except the words that are along with numbers, the place value of the first letter of the words is written in the place of words in alphabet.

Input: garden heat 36 in 28 below normal in 23 over.

Step I. In 23 garden heat 36 garden in 28 below normal over. Step II. In 23 heat 36 garden in 28 below normal over

Step III. In 23 heat 36 in 28 garden below normal over Step IV. In 23 heat 36 in 28 garden below normal over Step

V. in 23 heat 36 in 28 24 7 2 15

11. Option B

12. Option A

13. Option D

14. Option A

15. Option B

Questions (16-21):

In every step a number is arranged on the left end and a word on the right end. We begin with the largest number, then the second largest, and so on, till all the numbers are arranged in ascending order. Words are arranged in the alphabetical order.

Input: 29 cone 42 pale fear 39 67 fame 32 weld 77 turn

Step I. 77 29 42 pale fear 39 67 fame 32 weld turn cone

Step II. 67 77 29 42 pale fear 39 32 weld turn cone fame

Step III. 42 67 77 29 pale 39 32 weld turn cone fame fear

Step IV. 39 42 67 77 29 32 weld turn cone fame fear pale

Step V. 32 39 42 67 77 29 weld cone fame fear pale turn

Step VI. 29 32 42 67 77 cone fame fear pale turn weld

16. Option A

17. Option C

18. Option E

19. Option A

20. Option C

21. Option B

Directions (1-5): Read the following information and answer the questions. The following is an illustration of input and rearrangement

Input : ant real order world sunk india man undo catch eat  
Step I : undo ant real order world sunk india man eat catch  
Step II : undo order ant real world sunk india eat man catch  
Step III : undo order india ant world sunk eat real man catch  
Step IV : undo order india eat ant world sunk real man catch

And step IV is the last step of the rearrangement As per the rules followed in the above steps, find out in each of the following question the appropriate steps for the given input.

Input for the question

Input : horn simple anger best onto danger moon upto erase into

1. Which of the following would be the final arrangement?

- (1) best horn danger moon simple upto onto into erase anger
- (2) upto onto into erase anger best danger horn moon simple
- (3) upto onto into erase anger simple moon horn danger best
- (4) upto onto into erase anger simple danger horn moon best
- (5) None of these

2. In step III, which of the following word be at 6th position from the left?

- (1) moon
- (2) anger
- (3) simple
- (4) horn
- (5) None of these

3. Which step number would be the following output? upto onto horn simple anger moon erase into danger best.

- (1) II
- (2) III
- (3) V
- (4) IV
- (5) None of these

4. In step IV of the rearrangement, if onto is related to erase and moon is related to danger in a certain way, to which of the following would anger be related to, following the same pattern?

- (1) moon
- (2) into
- (3) simple
- (4) horn
- (5) None of these

5. Which of the following would be step VII?

- (1) upto onto into erase anger simple moon horn danger best
- (2) upto onto into erase anger moon simple danger horn best
- (3) upto onto into erase anger best danger horn moon simple
- (4) upto onto into erase simple anger moon horn danger best
- (5) There will be no such step as the input gets rearranged before step VII

Directions (6-10). Study the following information carefully and answer the given questions: The following is an illustration of input and rearrangement.

(All the numbers are two digits numbers)

Input : talk 61 26 mold boom 88 81 47 work known ink 36 69 cold

Step I : 26 talk 61 mold 88 81 47 work known ink 36 69 cold boom

Step II : 36 26 talk 61 mold 88 81 47 work known ink 69 boom cold

Step III : 47 36 26 talk 61 mold 88 81 work known 69 boom cold ink

Step IV : 61 47 36 26 talk mold 88 81 work 69 boom cold ink known

Step V : 69 61 47 36 26 talk 88 81 work boom cold ink known mold

Step VI : 81 69 61 47 36 26 88 work boom cold ink known mold talk

Step VII : 88 81 69 61 47 36 26 boom cold ink known mold talk work

Step VII is the last step of the above input, as the desired arrangement is obtained.

Input: 89 who root 19 46 near drink link gold 61 23 under 71 97

6. Which step number is the following output?

46 23 19 89 who root near 61 under 97 71 gold drink link

- (1) Step V
- (2) Step VI
- (3) Step IV
- (4) Step III
- (5) There is no such step

7. Which word/number would be at 5th position from the right in Step V ?

- (1) 19
- (2) 97
- (3) gold
- (4) drink
- (5) who

8. How many elements (words or numbers) are there between 'gold' and '46' as they appear in the last step of the output?

- (1) One
- (2) Three
- (3) Four
- (4) Five
- (5) Seven

9. Which of the following represents the position of 'who' in the fourth step?

- (1) Eighth from the left
- (2) Fifth from the right
- (3) Sixth from the left
- (4) Fifth from the left
- (5) Seventh from the left

10. Which of the following would be step IV?

- (1) 19 89 who root 46 near link gold 61 23 under 71 97 drink
- (2) 71 61 46 23 19 89 who under 97 drink gold link near root
- (3) 61 46 23 19 89 who root under 71 97 drink gold link near
- (4) 97 89 71 61 46 23 19 drink gold link near root under who
- (5) None of these

Directions (11-15): Study the following information carefully and answer the given questions:

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

(All the numbers are two digits numbers)

Input: take 61 26 mock boom 88 81 47 work known inch 36 69 cold.

Step I: 26 take 61 mock 88 81 47 work known inch 36 69 cold boom.

Step II: 36 26 take 61 mock 88 81 47 work known inch 69 boom cold.

Step III: 47 36 26 take 61 mock 88 81 work known 69 boom cold inch.

Step IV: 61 47 36 26 take mock 88 81 work 69 boom cold inch known.

Step V: 69 61 47 36 26 take 88 81 work boom cold inch known mock.

Step VI: 81 69 61 47 36 26 88 work boom cold inch known mock take.

Step VII: 88 81 69 61 47 36 26 boom cold inch known mock take work.

Step VII is the last step of the above input, as the desired arrangement is obtained.

As per the rules followed in the above steps, find out in each of the following questions the appropriate step for the given input.

Input: 89 what rose 19 46 niece dream lotus game 61 23 unlucky 71 97 (All the numbers are two digits numbers).

11. Which step number is the following output?

46 23 19 89 what rose niece 61 unlucky 97 71 game dream lotus.

- (a) Step V
- (b) Step VI
- (c) Step IV
- (d) Step III
- (e) There is no such step

12. Which word/number would be at 5th position from the right in Step V?

- (a) 19
- (b) 97
- (c) game
- (d) dream
- (e) what

13. How many elements (words or numbers) are there between 'game' and '46' as they appear in the last step of the output?

- (a) One
- (b) Three
- (c) Four
- (d) Five
- (e) Seven

14. Which of the following represents the position of 'what' in the fourth step?

- (a) Eighth from the left
- (b) Fifth from the right
- (c) Sixth from the left
- (d) Fifth from the left
- (e) Seventh from the left

15. Which word/number would be at 3rd position from the right in Step IV?

- (a) 19
- (b) 97
- (c) game
- (d) dream
- (e) what

Directions (16-20): Study the following information carefully to answer the given questions:

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

Input: persons immediate determined exactly circle opportunities 60 75 80 30 10

Step I: determined persons immediate exactly circle opportunities 60 75 80 10 30

Step II: determined persons circle immediate exactly opportunities 75 80 10 30 60

Step III: determined persons circle immediate opportunities exactly 80 10 30 60 75

Step IV: determined persons circle opportunities immediate exactly 10 30 60 75 80

And step IV is the last step of the above input. As per the rules followed in the above steps, find out the appropriate steps for the above input.

Input: executives consumer different information machine arrangements 25 43 73 82 95

16. How many steps will be required to complete the given arrangement?

- (a) Five
- (b) Six
- (c) Seven
- (d) Four
- (e) None of the above

17. Which of the following is the third element from the left in step V?

- (a) Consumer
- (b) Machine
- (c) Executives
- (d) 73
- (e) None of the above

18. Which of the following is step III of the given input?

- (a) Different consumer executives information machine arrangements 73 82 95 25 43
- (b) Different consumer machine executives information arrangements 82 95 25 43 73
- (c) Different consumer machine arrangements executives information 95 25 43 73 82
- (d) Different consumer executives machine information arrangements 25 43 73 82 95
- (e) None of the above

19. What is the position of 'arrangements' from the left end in the last step of the output?

- (a) Fifth
- (b) Sixth
- (c) Fourth
- (d) Seventh
- (e) None of the above

20. Which of element is third to the right of 'information' in step IV?

- (a) Machine
- (b) 43
- (c) 25
- (d) 73
- (e) None of the above



Directions (21-25): Read the following information and answer the questions. The following is an illustration of input and rearrangement

Input : ant real order world sunk India man undo catch eat

Step I : undo ant real order world sunk India man eat catch

Step II : undo order ant real world sunk India eat man catch

Step III : undo order India ant world sunk eat real man catch

Step IV : undo order India eat ant world sunk real man catch

And step IV is the last step of the rearrangement As per the rules followed in the above steps, find out in each of the following question the appropriate steps for the given input.

Input for the question

Input : horn simple anger best onto danger moon upto erase into

21. Which of the following would be the final arrangement?

- (1) best horn danger moon simple upto onto into erase anger
- (2) upto onto into erase anger best danger horn moon simple
- (3) upto onto into erase anger simple moon horn danger best
- (4) upto onto into erase anger simple danger horn moon best
- (5) None of these

22. In step III, which of the following word be at 6th position from the left?

- (1) moon
- (2) anger
- (3) simple
- (4) horn
- (5) None of these

23. Which step number would be the following output? upto onto horn simple anger moon erase into danger best.

- (1) II
- (2) III
- (3) V
- (4) IV
- (5) None of these

24. In step IV of the rearrangement, if onto is related to erase and moon is related to danger in a certain way, to which of the following would anger be related to, following the same pattern?

- (1) moon
- (2) into
- (3) simple
- (4) horn
- (5) None of these

25. Which of the following would be step VII?

- (1) upto onto into erase anger simple moon horn danger best
- (2) upto onto into erase anger moon simple danger horn best
- (3) upto onto into erase anger best danger horn moon simple

(4) upto onto into erase simple anger moon horn danger best

(5) There will be no such step as the input gets rearranged before step VII

Directions (26-30). Study the following information carefully and answer the given questions: The following is an illustration of input and rearrangement.

(All the numbers are two digits numbers)

Input: each 22 centre 35 28 face bat 37 18 hot let 20

Step I: 37 each 22 centre 35 28 face 18 hot let 20 bat

Step II: 35 37 each 22 28 face 18 hot let 20 bat centre

Step III: 28 35 37 22 face 18 hot let 20 bat centre each

Step IV: 22 28 35 37 18 hot let 20 bat centre each face

Step V: 20 22 28 35 37 18 let bat centre each face hot

Step VI: 18 20 22 28 35 37 bat centre each face hot let

And Step VI is the last step of the above input. As per the rules followed in the above steps, find out in each of the following questions the appropriate step for the given input:

Input: 19 gupta 38 was called 24 45 on 27 41 the day next 35

Q26. How many steps will be required to complete the given rearrangement?

- (a) Six
- (b) Four
- (c) Eight
- (d) Seven
- (e) None of the above

Q27. Which of the following elements is fourth from the right end in Step IV?

- (a) called
- (b) day
- (c) 35
- (d) 27
- (e) None of the above

Q28. How many elements are there between '19' and 'was' in the second-last step?

- (a) None
- (b) Ten
- (c) Nine
- (d) Twelve
- (e) None of the above

Q29. Which of the following represents the first two and the last two elements in the last step?

- (a) 27, 38; on, the
- (b) 27, 35; next, on
- (c) 19, 24; the, was
- (d) 24, 27; was, the
- (e) None of the above

Q30. Which step number is the following output?

38 41 45 19 was 24 on 27 the next 35 called day gupta

- (a) Step V
- (b) Step III
- (c) Step IV
- (d) Step VI
- (e) None of the above

### Solutions

Solutions (1-5):

Words that start with vowel are arranged in decreasing alphabetical order on the left and the words that start with consonant are arranged on the right.

Input : horn simple anger best onto danger moon upto erase into  
Step I : upto horn simple anger onto danger moon erase into best  
Step II : upto onto horn simple anger moon erase into danger best  
Step III : upto onto into simple anger moon erase horn danger best  
Step IV : upto onto into erase anger simple moon horn danger best

- 1. Option C
- 2. Option A
- 3. Option A
- 4. Option A
- 5. Option E

Solutions (6-10):

Input : 89 who root 19 46 near drink link gold 61 23 under 71 97  
Step I : 19 89 who root 46 near link gold 61 23 under 71 97 drink  
Step II : 23 19 89 who root 46 near link 61 under 71 97 drink gold  
Step III : 46 23 19 89 who root near 61 under 71 97 drink gold link  
Step IV : 61 46 23 19 89 who root under 71 97 drink gold link near  
Step V : 71 61 46 23 19 89 who under 97 drink gold link near root  
Step VI : 89 71 61 46 23 19 who 97 drink gold link near root under  
Step VII : 97 89 71 61 46 23 19 drink gold link near root under who

- 6. Option E
- 7. Option D
- 8. Option B
- 9. Option C
- 10. Option C

Solutions (1-5):

Logic: In every step a number is arranged on the left end and a word on the right end. We begin with the smallest number, then the second smallest, and so on, till all the numbers are arranged in descending order. Words are arranged in the alphabetical order.

Input : 89 what rose 19 46 niece dream lotus game 61 23 unlucky 71 97.  
Step I : 19 89 what rose 46 niece lotus game 61 23 unlucky 71 97 dream.  
Step II : 23 19 89 what rose 46 niece lotus 61 unlucky 71 97 dream game.  
Step III : 46 23 19 89 what rose niece 61 unlucky 71 97 dream game lotus.

Step IV : 61 46 23 19 89 what rose unlucky 71 97 dream game lotus niece.

Step V : 71 61 46 23 19 89 what unlucky 97 dream game lotus niece rose.

Step VI : 89 71 61 46 23 19 what 97 dream game lotus niece rose unlucky.

Step VII : 97 89 71 61 46 23 19 dream game lotus niece rose unlucky what.

11. Option E

12. Option D

13. Option B

14. Option C

15. Option C

Solutions (6-10):

Logic: The machine rearranges one word and one number in each step. The words are rearranged from the left end and the numbers are rearranged on the right. First, the words starting from consonants are rearranged according to the decreasing order of their length and then the words starting from vowels are rearranged according to the decreasing order of their length. The numbers are rearranged in ascending order on the right end.

Input: executives consumer different information machine arrangements 25 43 73 82 95

Step I: different executives consumer information machine arrangements 43 73 82 95 25

Step II: different consumer executives information machine arrangements 73 82 95 25 43

Step III: different consumer machine executives information arrangements 82 95 25 43 73

Step IV: different consumer machine arrangements executives information 95 25 43 73 82

Step V: different consumer machine arrangements information executives 25 43 73 82 95

16. Option A

17. Option B

18. Option B

19. Option C

20. Option B

Solutions (21-25):

Words that start with vowel are arranged in decreasing alphabetical order on the left and the words that start with consonant are arranged on the right.

Input : horn simple anger best onto danger moon upto erase into

Step I : upto horn simple anger onto danger moon erase into best

Step II : upto onto horn simple anger moon erase into danger best

Step III : upto onto into simple anger moon erase horn danger best

Step IV : upto onto into erase anger simple moon horn danger best

21. Option C

22. Option A

23. Option A

24. Option A

25. Option E

Solutions(26-30):

*Logic: In the first step, the largest number comes to the left and the first word in alphabetical order goes to the right. In the second step, the second largest number comes to the left and the second word in alphabetical order goes to the right. This goes on till number are arranged in ascending order and words in alphabetical order.*

*Input: 19 gupta 38 was called 24 45 on 27 41 the day next 35*

*Step I: 45 19 gupta 38 was 24 on 27 41 the day next 35 called*

*Step II: 41 45 19 gupta 38 was 24 on 27 the next 35 called day*

*Step III: 38 41 45 19 was 24 on 27 the next 35 called day gupta*

*Step IV: 35 38 41 45 19 was 24 on 27 the called day gupta next*

*Step V: 27 35 38 41 45 19 was 24 the called day gupta next on*

*Step VI: 24 27 35 38 41 45 19 was called day gupta next on the*

*Step VII: 19 24 27 35 38 41 45 called day gupta next on the was*

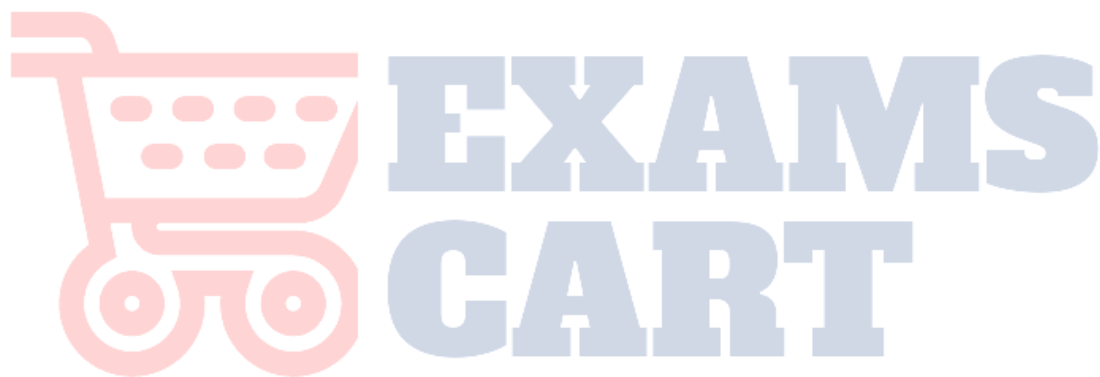
26. Option D

27. Option A

28. Option A

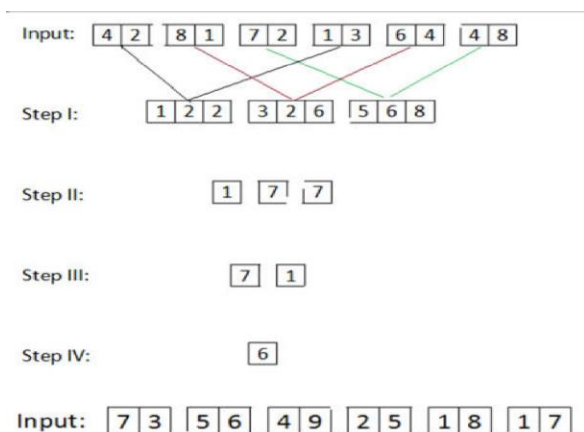
29. Option C

30. Option B



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*Directions(1-5): A number arrangement machine arranges two digit numbers in typical manner. The first step has been obtained by multiplying the digits in input. Multiplication has not been done in any other steps. They are obtained by applying certain logic. Each step is a resultant of previous step.*



1. If each middle digit of all the three numbers in the step I are halved and then added, then what will be the final sum?

A) 4 B) 6.5 C) 3.5 D) 7.5 E) None of these

2. If the final output is subtracted from '5', then what will be the resultant value?

A) -2.8 B) -3.2 C) 2.8 D) 3.2 E) None of these

3. Which of the following combination represent the first digit of the third number and second digit of the first number in step I of the given input?

A) (5,2) B) (8,3) C) (3,8) D) (2,5) E) (2,4)

4. Which of the following represent the difference between the third digit of the third number and second digit of the first number in step I?

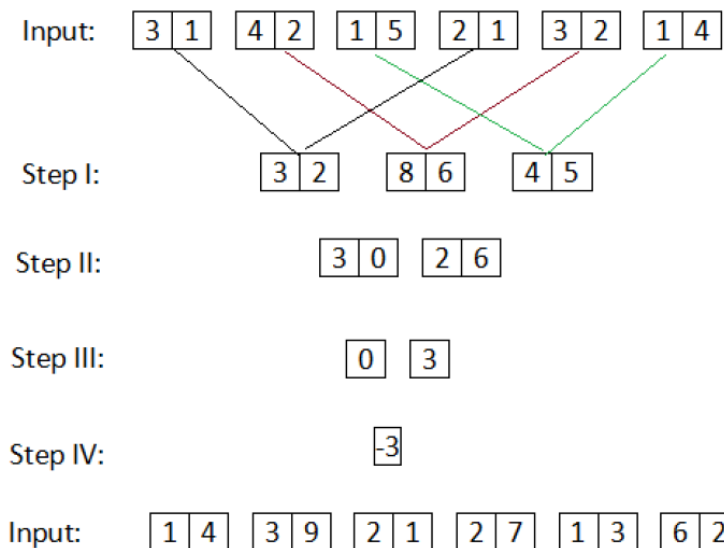
A) 4 B) 5 C) 6 D) -4 E) None of these

5. What is the multiplication of three numbers obtained in step II?

A) 100 B) 120 C) 240 D) 220 E) None of these

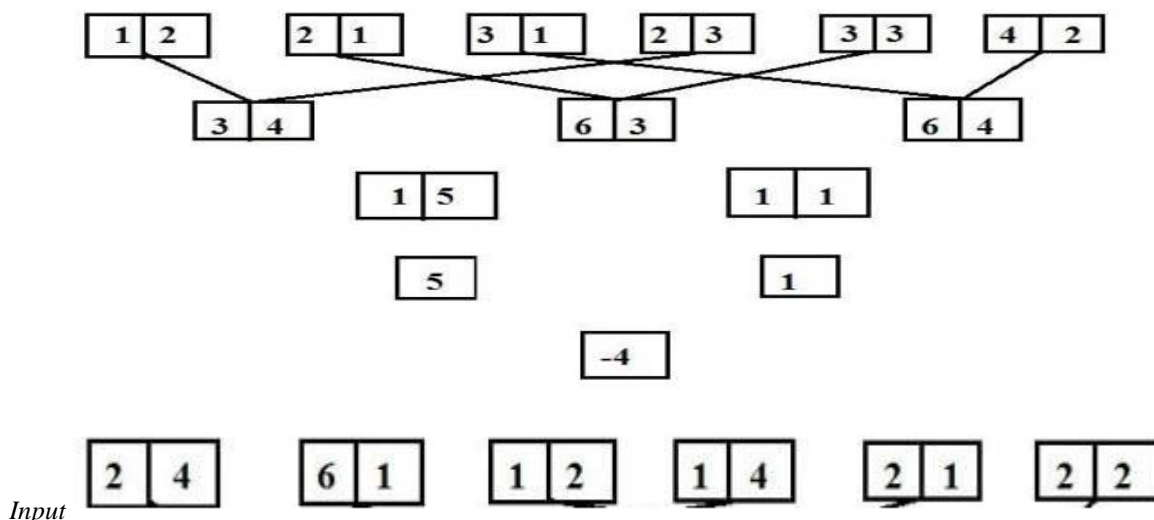
**Directions(6-10):** A number arrangement machine arranges two digit numbers in typical manner. The first step has been obtained by multiplying the digits in input. Multiplication has not been done in any other steps. They are obtained by applying certain logic. Each step is a resultant of previous step.





6. If each digit in the step II is halved and then added, then what will be the final sum?  
A) 4 B) 7 C) 3.5 D) 8 E) None of these
7. If the value '7.5' is subtracted from the final output, then what will be the resultant value?  
A) 6 B) 8 C) -9 D) -6 E) None of these
8. Which of the following combination represent the first digit of the third number and second digit of the first number in step I of the given input?  
A) (8,4) B) (7,4) C) (8,6) D) (4,8) E) (4,7)
9. Which of the following represent the difference between the first digit of the second number and second digit of the first number in step II?  
A) 4 B) 0 C) 6 D) -4 E) None of these
10. What is the multiplication of two numbers obtained in step III?  
A) 6.0 B) 1.6 C) 2.0 D) 0 E) None of these

*Directions(11-15): A number arrangement machine arranges two digit numbers into a typical manner. Each step taken gives output taking input from the previous step. The following is an illustration of Input and rearrangement. Using the illustration answer the question given below.*



11. If the value '5' is subtracted from the final output then what will be the resultant value?

A. -1 B. 1 C. -11 D. 11 E. None of these

12. If in the first step the first digit of every number is added and multiplied by 4 then which will be the resultant value?

A. 56 B. 60 C. 52 D. 64 E. None of these

13. Which of the following combinations represent the first digit of the second value and the second digit of the first value in Step I of the given input?

A. 6, 4 B. 4, 6 C. 8, 2 D. 2, 8 E. 2, 4

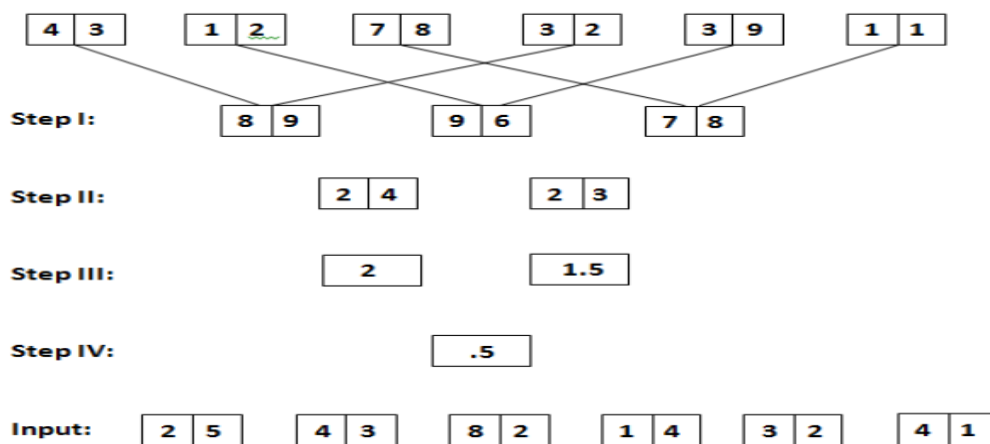
14. Which of the following represents the sum of the first digit of the second value and the second digit of the first value in Step II of the given input?

A. 8 B. 7 C. 6 D. 4 E. 9

15. Which of the following represents the difference between the first value and the second value of Step III of the given input?

A. 8 B. 7 C. 9 D. 4 E. 6

Directions(16-18): The first step has been obtained by multiplying the digits in input. No other step uses multiplication concept. They are obtained by applying certain logic. Numbers of step II have been obtained by using at least 1 digit of each number in step I. Each step is a resultant of previous step.



16. What is the sum of second digit of largest number and first digit of smallest number in step I?

A. 15 B. 20 C. 17 D. 22 E. 25

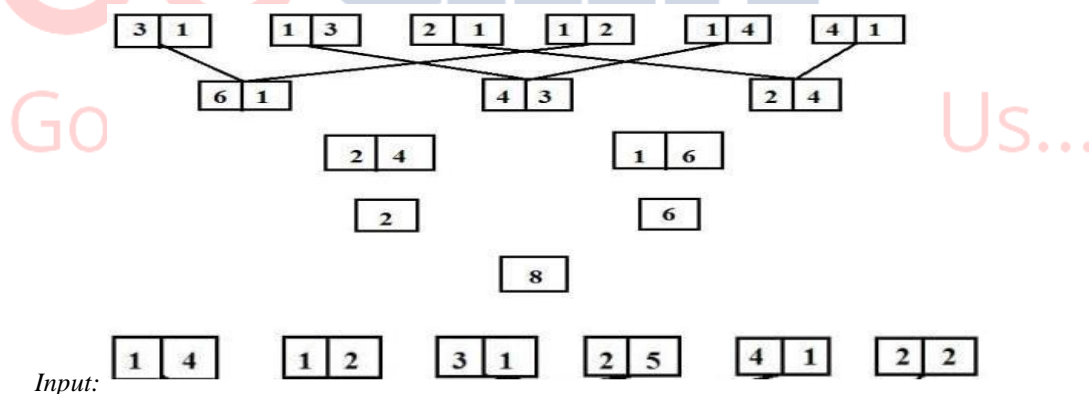
17. Which of the following will be step IV?

A. 1.5 B. 1 C. 2 D. 3 E. 4

18. What is sum of numbers in step III?

A. 2 B. 2.5 C. 4 D. 3 E. 1.5

Directions(19-23): A number arrangement machine arranges two digit numbers into a typical manner. Each step taken gives output taking input from the previous step. The following is an illustration of Input and rearrangement. Using the illustration answer the question given below.



19. If the value "6" is added to the final output then what will be the resultant value?

A. 12 B. 13 C. 10 D. 11 E. None of these

20. If in the first step the second digit of every number is added and divided by 3 then which will be the resultant value?

A. 5 B. 6 C. 2 D. 4 E. None of these

21. Which of the following combinations represent the first digit of the third value and the second digit of the first value in Step I of the given input?

A. 5, 1 B. 1, 5 C. 8, 6 D. 6, 8 E. 8, 8

22. Which of the following represents the sum of the second digit of the second value and the first digit of the first value in Step II of the given input?

A. 8 B. 7 C. 6 D. 4 E. 9

23. Which of the following represents the difference between the first value and the second value of Step III of the given input?

A. 1 B. 2 C. 0 D. 4 E. 5

Directions(24-28): An arrangement machine, when given a particular Input, rearranges it following a particular rule in each step. The following is the illustration of the input and the steps of arrangement.

Input :-	A F	U E	W Q	H K	I V	D T
STEP 1-	U E	P C	Q N	B H	D T	X S
STEP 2-	3 5	7 3	8 5	2 8	4 2	6 1
STEP 3-	1 3	3 1	2 4			
STEP 4-	2 0					
STEP 5-	0					

Step 5 is the last step for this input

As per rules followed in the above step, give answer to the following questions

Input :-	S I	G C	R L	F X	O M	N K
----------	-----	-----	-----	-----	-----	-----

24. Which of the following is third to the right in step 1?

a) SA b) RU c) GL d) GM e) none of these

25. Which of the following will be Step 1 for the above input?

a) Mk JL AS GN RU FP b) KN JL SA GM RV FP c) JL KM GM SA RU EO d) KN JL SA GL RV EO

e) none of these

26. Which of the following will be step 3 for the above input?

a) 36 17 78 b) 99 17 67 c) 53 81 57 d) 51 81 56 e) none of these.

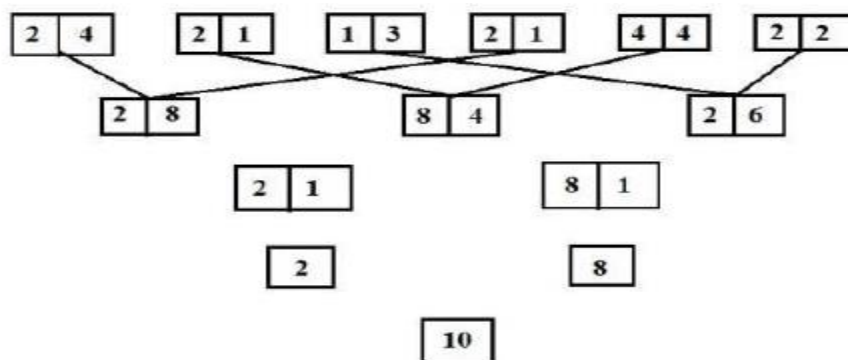
27. What could be the value of final step for this input?

a) 4 b) 6 c) 8 d) 10 e) none of these

28. Which of the following is third to right of 13 in step 2?

a) 74 b) 94 c) 67 d) 84 e) none of these

Directions(29-33): A number arrangement machine arranges two digit numbers into a typical manner. Each step taken gives output taking input from the previous step. The following is an illustration of Input and rearrangement. Using the illustration answer the question given below.



29. If the value "5" is subtracted from the final output then what will be the resultant value?

A. 5 B. 1 C. 2 D. 3 E. None of these

30. If in the first step the first digit of every number is added and multiplied by 4 then which will be the resultant value?

A. 56 B. 60 C. 52 D. 48 E. None of these

31. Which of the following combinations represent the first digit of the second value and the second digit of the first value in Step I of the given input?

A. 1, 4 B. 4, 8 C. 8, 3 D. 3, 8 E. 3, 4

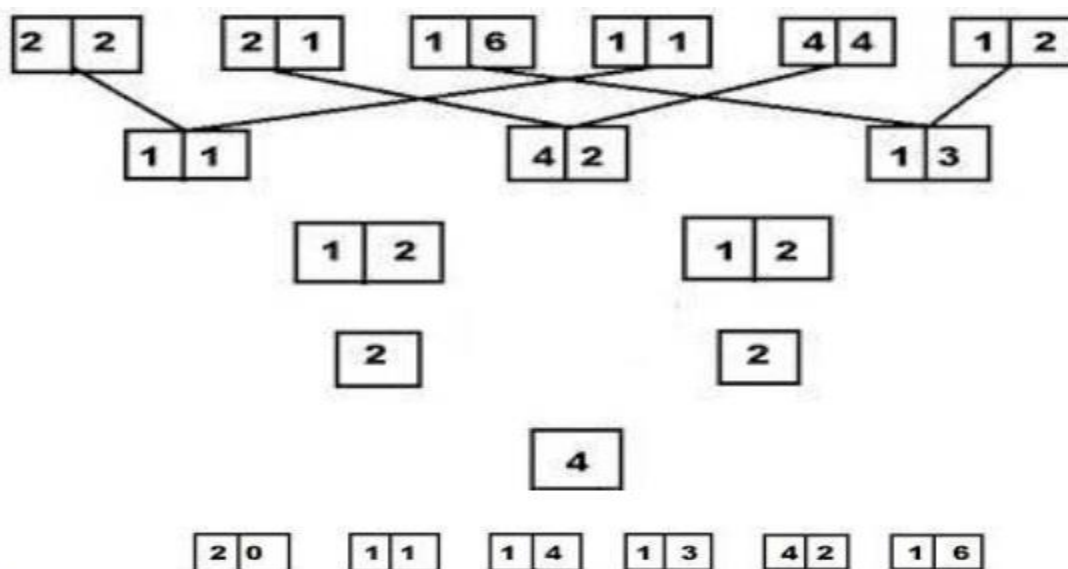
32. Which of the following represents the sum of the first digit of the second value and the second digit of the first value in Step II of the given input?

A. 8 B. 7 C. 6 D. 4 E. 9

33. Which of the following represents the difference between the first value and the second value of Step III of the given input?

A. 8 B. 3 C. 5 D. 4 E. 6

Directions(34-38): A number arrangement machine arranges two digit numbers into a typical manner. Each step taken gives output taking input from the previous step. The following is an illustration of Input and rearrangement. Using the illustration answer the question given below.



34. If the value "5" is multiply with the final output then what will be the resultant value?

A. 20 B. 16 C. 24 D. 12 E. 28

35. If in the first step the second digit of every number is added and subtracted by 3 then which will be the resultant value?

A. 6 B. 2 C. 1 D. 0 E. 4

36. Which of the following combinations represent the second digit of the third value and the first digit of the second value in Step I of the given input?

A. 3, 2 B. 2, 3 C. 1, 2 D. 2, 1 E. 1, 3

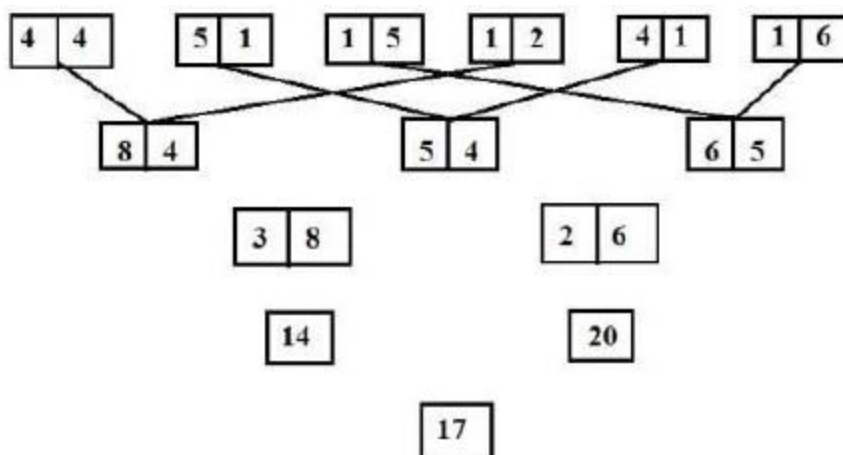
37. Which of the following represents the multiply of the first digit of the second value and the second digit of the first value in Step II of the given input?

A. 4 B. 0 C. 8 D. 32 E. 2

38. Which of the following represents the multiply of the first digit of the third value and the second digit of the second value in Step I of the given input?

A. 3 B. 6 C. 2 D. 0 E. 9

Directions(39-43): A number arrangement machine arranges two digit numbers into a typical manner. Each step taken gives output taking input from the previous step. The following is an illustration of Input and rearrangement. Using the illustration answer the question given below.



**Input:** [4, 2] [1, 5] [5, 1] [2, 1] [1, 4] [6, 1]

39. If the value "6" is added to the final output then what will be the resultant value?

A. 21 B. 23 C. 18 D. 24 E. None of these

40. If in the first step the second digit of every number is added and divided by 3 then which will be the resultant value?

A. 5 B. 6 C. 2 D. 4 E. None of these

41. Which of the following combinations represent the first digit of the third value and the second digit of the first value in Step I of the given input?

A. 5, 4 B. 4, 5 C. 5, 6 D. 6, 5 E. 4, 4

42. Which of the following represents the sum of the second digit of the second value and the first digit of the first value in Step II of the given input?

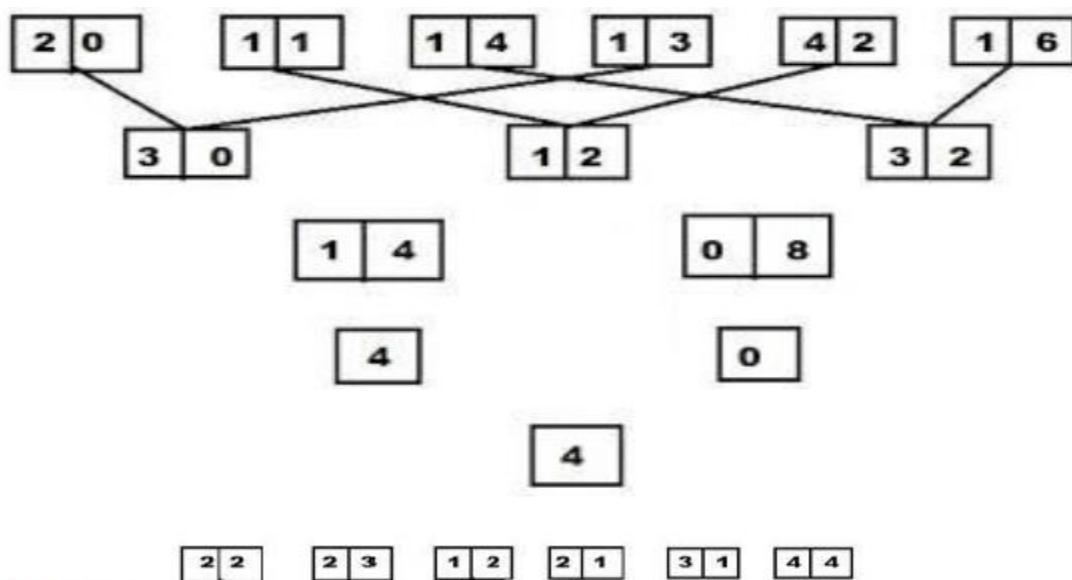
A. 8 B. 7 C. 6 D. 2 E. 9

43. Which of the following represents the difference between the first value and the second value of Step III of the given input?

A. 1 B. 2 C. 7 D. 4 E. 5

*Directions(44-48): A number arrangement machine arranges two digit numbers into a typical manner. Each step taken gives output taking input from the previous step. The following is an illustration of Input and rearrangement. Using the illustration answer the question given below.*





**Input:**

44. If the value "6" is added to the final output then what will be the resultant value?

A. 2 B. -14 C. 14 D. -2 E. 4

45. If in the first step the first digit of every number is added and multiply by 3 then which will be the resultant value?

A. 16 B. 24 C. 32 D. 20 E. 22

46. Which of the following combinations represent the second digit of the first value and the first digit of the third value in Step I of the given input?

A. 2, 8 B. 2, 4 C. 4, 2 D. 4, 4 E. 4, 8

47. Which of the following represents the multiply of the second digit of the third value and the second digit of the first value in Step I of the given input?

A. 72 B. 32 C. 16 D. 36 E. 08

48. If in the first step the second digit of every number is added and divided by 3 then which will be the resultant value?

A. 7 B. 6 C. 4 D. 2 E. 0

Directions(49-53):The following is an illustration of Input and rearrangement. Using the illustration answer the question given below.

Step-I: Interchange the Alphabets/Numbers(follow the same pattern as shown in Figure.)

Step-II:

(a) If both letters are Vowel and number is less than 6, then vowels change to next letter in English alphabetical series and add 2 to the number

(b) If both letters are consonant and number is greater than 6 or equal to, then consonants change to the previous letter in English alphabetical series and subtract 3 from the number

(c) If both letters are Vowel and number is greater than 6 or equal to, then vowels change to the previous letter in English alphabetical series and subtract 3 from the number

(d) If both letters are consonant and number is less than 6, then consonants change to next letter in English alphabetical series and add 3 to the number

(e) If there are one vowel and one consonant, then vowel change to next letter and consonant change to the previous letter and add 2 to the number.

(f) If there is single consonant, then consonant change to the previous letter and Subtract 3 from the number.

(g) If there is a single vowel, then vowel change to next letter and add 3 to the number.

Step-III: Follow Both Steps I and II

Example:

IE 9	E 3	OI 5
C 8		QR 5
AB 4	CB 7	F 4

Step I

F 4	CB 3	AB 4
QR 8		C 5
OI 5	E 7	IE 9

Step II

E 1	DC 6	BA 1
PQ 5		B 2
PJ 7	F 10	HD 6

Step III

GC 3	E 3	OI 9
A 2		QR 5
AB 3	ED 7	F 4

Input:

C 7	E 4	CD 4
EU 8		MN 7
CU 5	IO 4	D 8

49. In Step III, what is the sum of numbers in the first row?

A. 15 B. 11 C. 12 D. 13 E. None of these

50. In Step III, what is the difference between the sum of numbers in the first row and the sum of numbers in the third row?

A. 5 B. 6 C. 3 D. 4 E. None of these

51. In Step II, what is the product of the sum of numbers in the first column and the sum of numbers in the third column?

A. 245 B. 285 C. 275 D. 255 E. 235

52. In Step II, If the sum of the numbers in the third row is divided by the sum of numbers in the second row then what will be the resultant?

A. 8 B. 7 C. 6 D. 4 E. 2

53. In Step I, which of the following letter/number occur more than twice?

A. E B. U C. 7 D. 4 E. 8

### Solutions

Solutions(1-5):

Input: 

7	3
---	---

5	6	4	9
---	---	---	---

2	5
---	---

1	8
---	---

1	7
---	---

Step I: 

3	5	6
---	---	---

4	0	6
---	---	---

2	8	9
---	---	---

Step II: 

4
---

10
----

3
---

Step III: 

2.5
-----

0.3
-----

Step IV: 

2.2
-----

In step I:  $7 * 5 = 35$ ;  $3 * 2 = 6$ ;

$5 * 8 = 40$ ;  $6 * 1 = 6$ ;

$4 * 7 = 28$ ;  $9 * 1 = 9$ ;

In step II: each first digit and third digit of the numbers are added and then subtracted with second digit.

$(6 + 3) - 5 = 4$ ;  $(6 + 4) - 0 = 10$ ;  $(2 + 9) - 8 = 3$ ;

In step III: divide the second number by the first number and also third number by second number.

$104 = 2.5$ ;  $310 = 0.3$ ;

In step IV: subtract the second number from first number. This is the final output.

$2.5 - 0.3 = 2.2$

1. B)  $5/2 + 0/2 + 8/2 = 2.5 + 0 + 4 = 6.5$

2. C)

3. D) The first digit of the third number in step I is '2' and the second digit of the first number is '5'. Hence, (2, 5)

4. A) The third digit of the third number in step I is '9' and second digit of the first number in step I is '5'. Hence,  $9 - 5 = 4$

5. B) The two numbers obtained in step II are 4, 10 and 3. Hence,  $4 * 10 * 3 = 120$

Solutions(6-10):

Input: 

1	4
---	---

3	9
---	---

2	1
---	---

2	7
---	---

1	3
---	---

6	2
---	---

Step I: 

7	8
---	---

9	9
---	---

4	6
---	---

Step II: 

4	0
---	---

4	6
---	---

Step III: 

0
---

1.5
-----

Step IV: 

-1.5
------

In step I:  $1 * 7 = 7$ ;  $4 * 2 = 8$ ;

$3 * 3 = 9$ ;  $9 * 1 = 9$ ;

$2 * 2 = 4$ ;  $1 * 6 = 6$ ;

In step II: each first digits of three numbers are added and multiplied by two and each second digits also do same.

$7 + 9 + 4 = 20 * 2 = 40$ ;  $8 + 9 + 6 = 23 * 2 = 46$ ;

In step III: divide the second digit by first digit in each two numbers.

$0/4 = 0$ ;  $6/4 = 1.5$ ;

In step IV: subtract the second number from first number. This is the final output.

$0 - 1.5 = -1.5$

6. B)  $4/2 + 0/2 + 4/2 + 6/2 = 2 + 0 + 2 + 3 = 7$

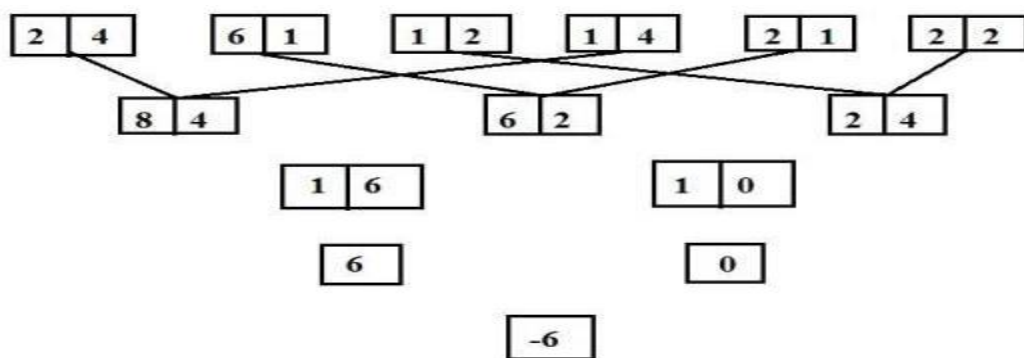
7. C) The final output is ' -1.5 '  $= -1.5 - 7.5 = -9.0$

8. D) The first digit of the third number in step I is '4' and the second digit of the first number is '8'. Hence, (4, 8)

9. A) The first digit of the second number in step II is '4' and second digit of the first number in step II is '0'. Hence,  $4 - 0 = 4$

10. D) The two numbers obtained in step III are 0 and 1.5. Hence,  $0 * 1.5 = 0$

Solutions(11-15):



Step I: Multiply the first digit of first number with second digit of fourth Number. Multiply the second digit of first number with first digit fourth number.

Step II: Add the first digit of all numbers in Step I for the first number and second digit of all numbers in Step I for the second number.

Step III: Divide second digit by first digit

Step IV: Second number is subtracted from the first number.

11. C)

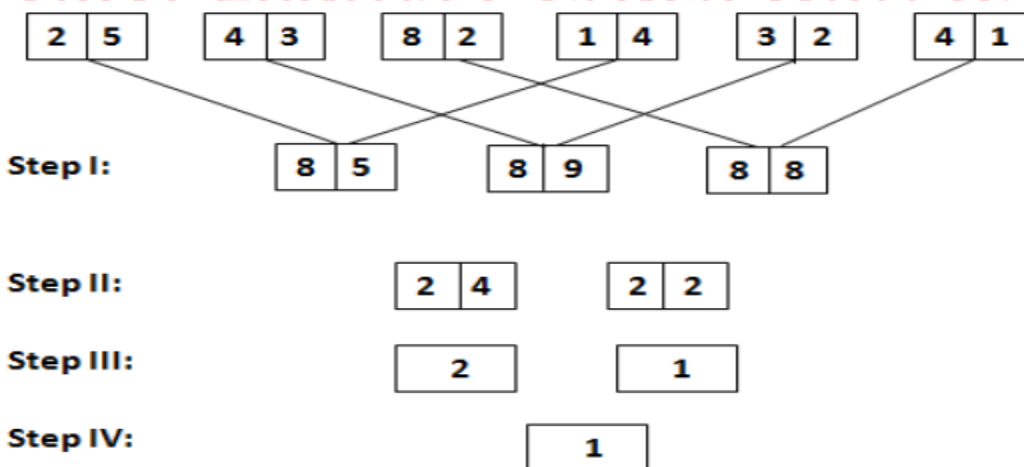
12. D)

13. A)

14. B)

15. E)

Solutions(16-18):



Step I:  $2 \times 4 = 8$ ,  $5 \times 1 = 5$ ,  $4 \times 2 = 8$ ,  $3 \times 3 = 9$ ,  $8 \times 1 = 8$ ,  $2 \times 4 = 8$

Step II:  $8 + 8 + 8 = 24$ ,  $5 + 9 + 8 = 22$

Step III:  $4/2=2$  ,  $2/2=1$

Step IV:  $2-1=1$

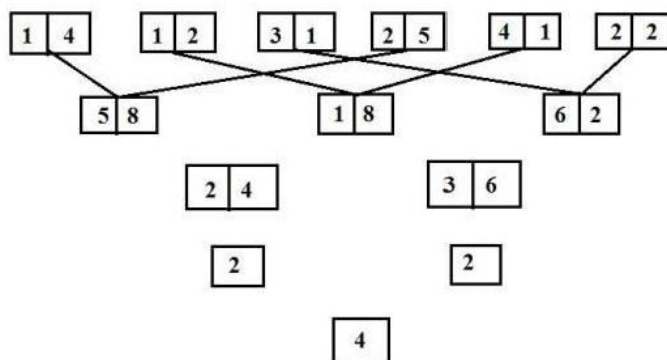
16. C) Largest Number=89, Smallest Number=85

$9+8=17$

17. B) Step IV: 1

18. D)  $2+1=3$

Solutions(19-23):



Step I: Multiply the first digit of first number with second digit of fourth Number. Multiply the second digit of first number with first digit fourth number.

Step II: Add the first digit of all numbers in Step I for the first number and second digit of all numbers in Step I for the second number and then multiply by 2.

Step III: Divide second digit by first digit

Step IV: Add two numbers.

19. C)

20. B)

21. D)

22. A)

23. C)

Solutions (24-28):

Input :-	S I	G C	R L	F X	O M	N K
STEP 1-	K N	J L	S A	G M	R V	F P
STEP 2-	2 5	1 3	1 1	7 4	9 4	6 7
STEP 3-	5 1	8 1	5 6			
STEP 4-	2 4					
STEP 5-	8					

Step 1- Exchange the places by taking their opposite alphabet and then subtract 2 places.

Step 2- Place value of alphabet. If exceeds 9 then add them to make single digit.

Step 3- Difference between the numbers.

Step 4- Add odd and even no. separately and then take their difference.

Step 5- Multiply the numbers.

24. D)

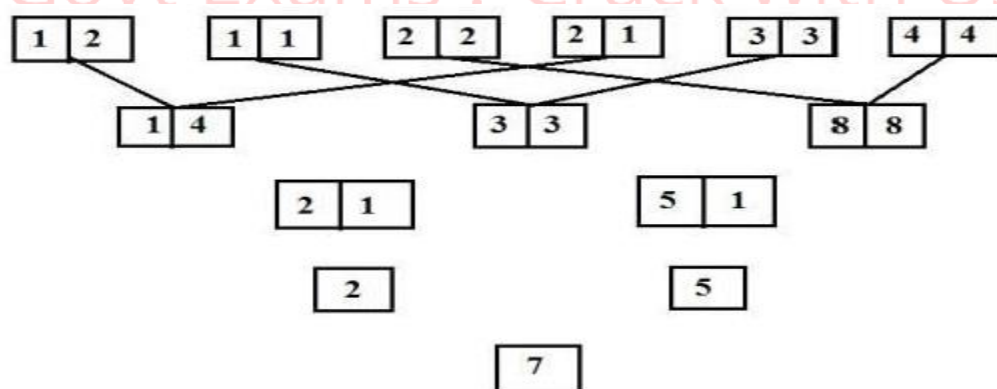
25. B)

26. D)

27. C)

28. B)

Solutions (29-33):



Step I: Multiply the first digit of first number with second digit of fourth Number. Multiply the second digit of first number with first digit fourth number.

Step II: Add the first digit of all numbers in Step I and second digit of all numbers in Step I and write down in the reverse order. Ex: first digit of all numbers = 14 then the output will be 41

Step III: Divide second digit by first digit



Step IV: Add both numbers.

Solutions(34-38):

Step I: Multiply the first digit of first number with second digit of fourth Number. Multiply the second digit of first number with first digit fourth number and now value divided by  $\square 2 \square$ .

Step II: Add the first digit of all numbers in Step I and second digit of all numbers in Step I and multiply by "2".

Step III: Divide second digit by first digit

Step IV: Add both numbers.

34. A)

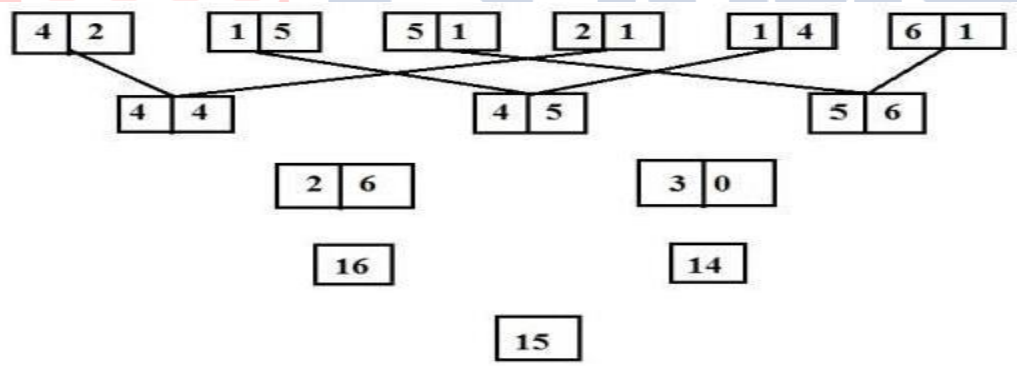
35. C)

36. D)

37. B)

38. B)

Solutions(39-43):



Step I: Multiply the first digit of first number with second digit of fourth Number. Multiply the second digit of first number with first digit fourth number.

Step II: Add the first digit of all numbers in Step I and second digit of all numbers in Step I and then multiply by 2.

Step III: Divide by two and then add 1 to the resultant. write down the first answer in the second box and vice versa.

Step IV: Add two numbers and then divide by two.

39. A)

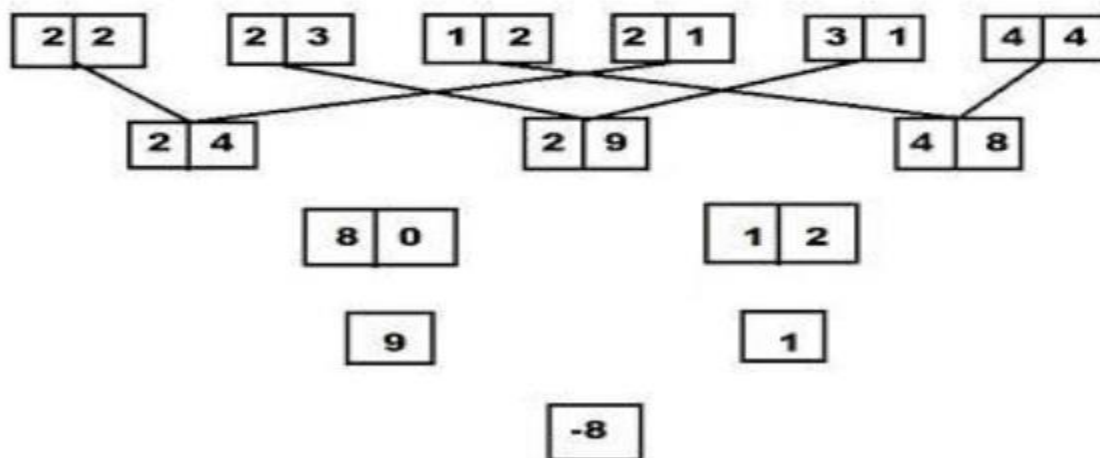
40. A)

41. A)

42. D)

43. B)

Solution(44-48):



Step I: Multiply the first digit of first number with second digit of fourth Number. Multiply the second digit of first number with first digit fourth number.

Step II: Add the first digit of all numbers in Step I and second digit of all numbers in Step I and write down in the reverse order. Ex: Second digit of all numbers  $[4+9+8] = 21$  then the output will be 12

Step III: Add first digit of value first to with second digit of second value. Add Second digit of value first to with first digit of value second. Ex:  $[8+1=9]$  and  $[0+1=1]$

Step IV: Second number is subtracted from the first number.

44. D)

45. B)

46. D)

47. B)

48. A)

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Solution(49-53):

C7	E4	CD4
EU8		MN7
CU5	IO4	D8

Step I

D8	IO4	CU5
MN8		EU7
CD4	E4	C7

Step II

C5	JP6	BV7
LM5		DT4
DE7	F7	B4

Step III

A1	E3	CF9
EU8		MN7
AU4	IO4	B2

49. D)

50. B)

51. D)

52. E)

53. D)



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