

Expected Input Output Part 1 for Upcoming Mains Exam

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Input Output Part 1

Directions(1-5): Study the given information to answer the questions based on it.

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

INPUT.	232	183	243	318	258	183	484	333
Step I.	115	60	80	158	128	60	241	110
Step II.	175	20	238	30	188	181	351	
Step III.	13	02	13	03	17	10	09	
Step IV.	26	06	26	06	34	30	18	

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

Expected Input Output Part 1 for Upcoming Mains Exam

Input – 262 153 237 308 156 261 482 555

1) Which of the following is the middle number in the last step?

- a. 26
- b. 18
- c. 10
- d. 30
- e. None of these

2) What will be resultant if 3rd element from the left end in step II is multiplied to 2nd element from the right end in step III?

- a. 164
- b. 1510
- c. 2310
- d. 60
- e. None of these

3) If all the numbers in step IV are arranged in the ascending order from the left to right, then how many numbers remain unchanged considering their original positions?

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

4) Which of the following element is 2nd to the right of the element which is 6th from the right end in the step III?

- a. 10
- b. 13
- c. 26

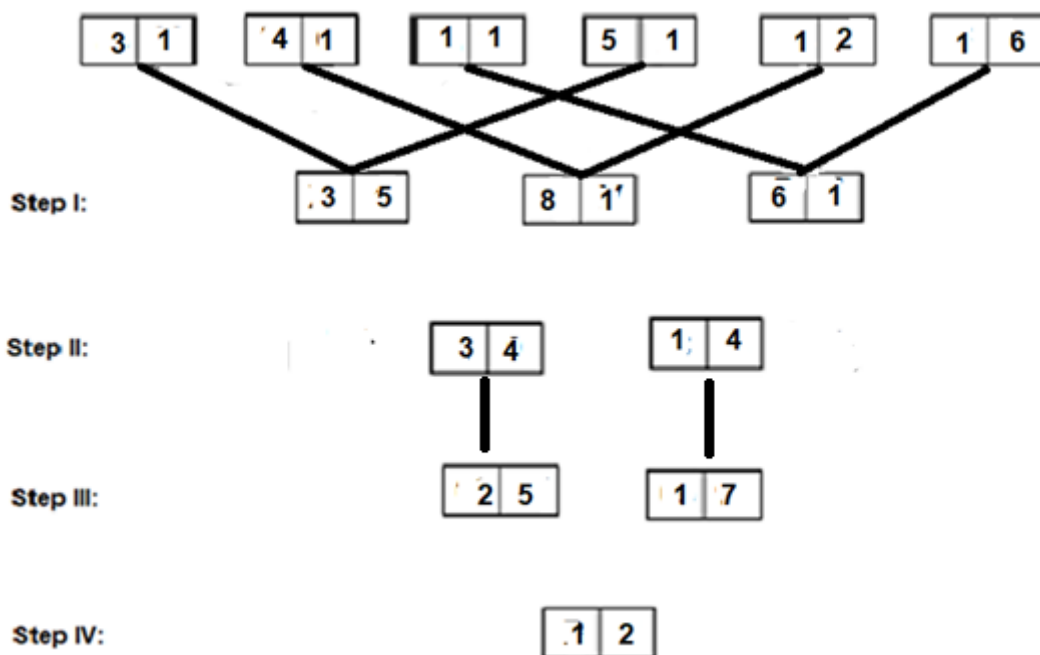
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- d. 18
e. None of these

5) What is the sum of the elements which are 3rd from the right end of step II and III?

- a. 163
b. 174
c. 173
d. 189
e. None of these

Directions(6-10): Study the given information carefully and answer the given questions. An input-output is given in different steps. Some logical operations are done in each step. No logical 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.



Expected Input Output Part 1 for Upcoming Mains Exam

6) Which of the following combinations represents the first digit of 2nd table of step II and second digit of first table of step III?

- a. 4, 1
- b. 3, 2
- c. 2, 1
- d. 5, 3
- e. None of these

7) Which of the following combinations represents the 2nd table of step III?

- a. 3,2
- b. 2,6
- c. 6,8
- d. 1, 3
- e. None of these

8) What is the product of 1st digit of 2nd table of step II and 2nd digit of 3rd table of step I?

- a. 20
- b. 14
- c. 24
- d. 30
- e. None of these

9) What is the difference between the 1st digit and 2nd digit of step IV of the given input?

- a. 1
- b. 2
- c. 3
- d. 7

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e. None of these

10) What is the sum of 2nd digit of 2nd tables in step I and 2nd digit of 2nd table of step III?

a. 5

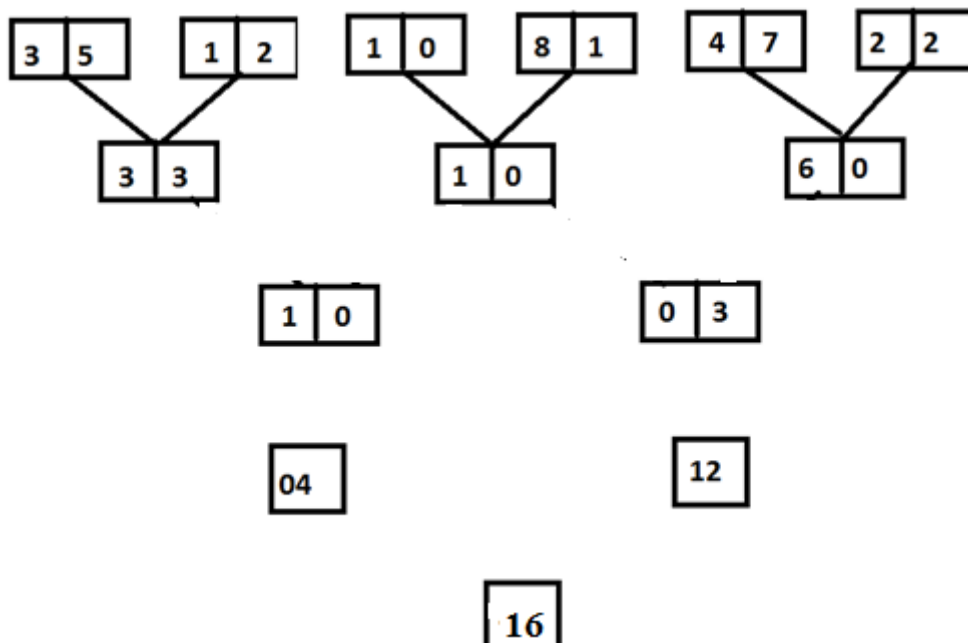
b. 7

c. 6

d. 9

e. None of these

Direction (11-15): Read the following given information carefully and answer the questions. 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.

Expected Input Output Part 1 for Upcoming Mains Exam

2	3
---	---

7	3
---	---

4	8
---	---

1	3
---	---

5	3
---	---

1	1
---	---

11) What will be the sum of the numbers in Step 1?

- a. 159
- b. 162
- c. 48
- d. 164
- e. None of these

12) Which of the following number is obtained in the last step?

- a. 3
- b. 27
- c. 64
- d. 50
- e. 125

13) What is the multiplication of all numbers in step2?

- a. 250
- b. 382
- c. 135
- d. 180
- e. 278

14) Which of the following is the step 3?

- a. 15, 09
- b. 75,20

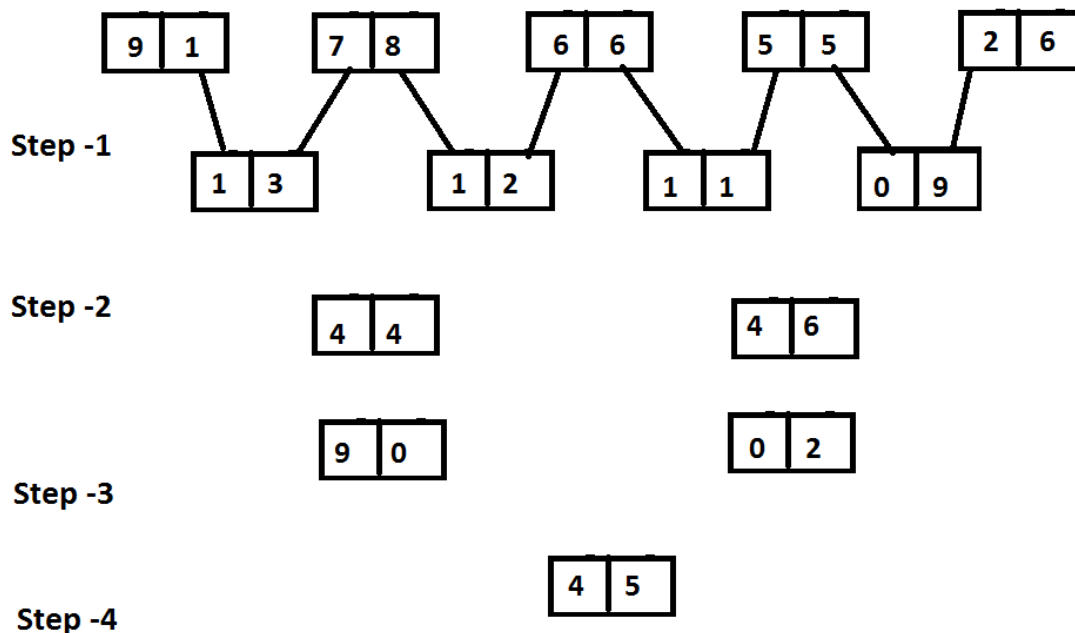
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- c. 12, 25
- d. 24, 36
- e. There is no such step.

15) What is the sum of second block in step 1 and second digit of a number in second block in step 2?

- a. 64
- b. 73
- c. 72
- d. 79
- e. 15

Direction(16-20): Read the following given information carefully and answer the questions. 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.

Expected Input Output Part 1 for Upcoming Mains Exam

5	9
---	---

4	1
---	---

2	3
---	---

9	8
---	---

7	1
---	---

16) Which of the following represent the difference between the first digit of the second number and second digit of the first number in Step 2?

- a. 9
- b. 1
- c. 4
- d. 3
- e. 0

17) If the value 8.5 is added to final output, then what will be the resultant value?

- a. 2
- b. 19
- c. 21.5
- d. 19.5
- e. 18

18) If the second digit of all blocks in Step I is halved and then added the half numbers, what will be the result?

- a. 4.5
- b. 3
- c. 6
- d. 4
- e. 5.5

19) Find the difference of two numbers in Step 3?

- a. 76

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b. 8

c. 92

d. 75

e. 10

20) Which is the smallest number in Step 1?

a. 10

b. 11

c. 12

d. 08

e. 06

Directions (21-25): Study the given information carefully and answer the given questions.

An arrangement machine, when given a particular input, rearranges following a particular rule. The following is the illustration of the input and the steps of the arrangement.

Input:

C		H		O		Z
---	--	---	--	---	--	---

Step -1

4		6		10
---	--	---	--	----

Step -2

E		H
---	--	---

Step -3

25		64
----	--	----

Step -4

8

Step 4 is the last step of the rearrangement.

As per the rules followed in the above steps, find out the answers to each of the following input

Expected Input Output Part 1 for Upcoming Mains Exam

Input:

D		G		L		U
---	--	---	--	---	--	---

21) Find the sum of the numbers in step 1?

- a. 12
- b. 14
- c. 18
- d. 16
- e. None of these

22) What is the division of number which is highest to the lowest number that occurs in Step 3?

- a. 4
- b. 9
- c. 16
- d. 25
- e. 36

23) What is the final number in step 4?

- a. 6
- b. 5
- c. 4
- d. 9
- e. 8

24) If the last step number is multiplied by 4 what will be the final answer?

- a. 25
- b. 38
- c. 36
- d. 32

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e. None of these

25) If all the number of the Step-3 are added then what will be the answer?

a. 45

b. 48

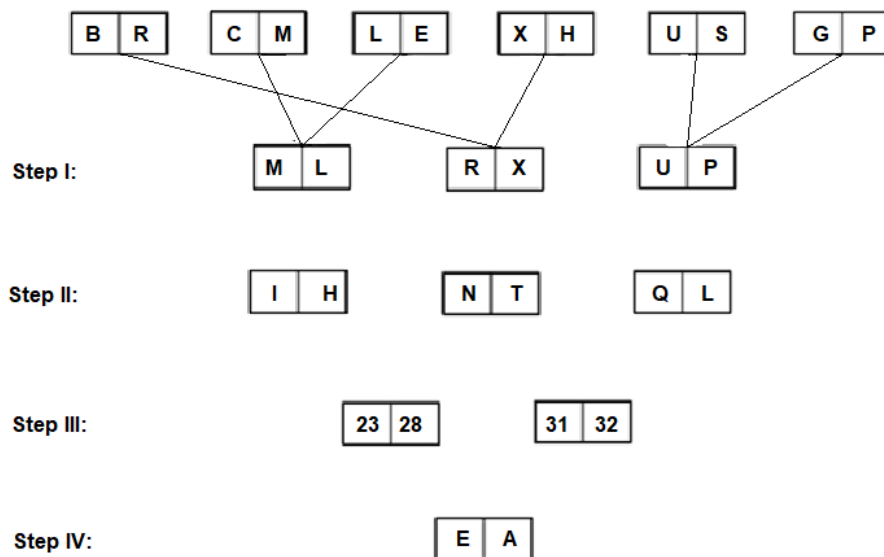
c. 44

d. 32

e. None of these

Direction(26-30): Study the given information carefully and answer the given questions.

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.



26) Which among the following numbers are in 2nd table in step III of the given input?

a. 13, 15

b. 18, 19

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- c. 34, 19
- d. 23, 17
- e. None of these.

27) What are the letters in the final table of the given input?

- a. E, P
- b. C, O
- c. E, C
- d. P, O
- e. None of these

28) What are the letters in the 2nd table in step II of the given input?

- a. P, L
- b. R, X
- c. T, P
- d. Q, L
- e. None of these

29) Which letter is in the 2nd part of the 3rd table of Step I of the given input?

- a. V
- b. K
- c. R
- d. W
- e. None of these

30) If all the number of the second last step are added then what will be the answer?

- a. 85
- b. 84
- c. 88

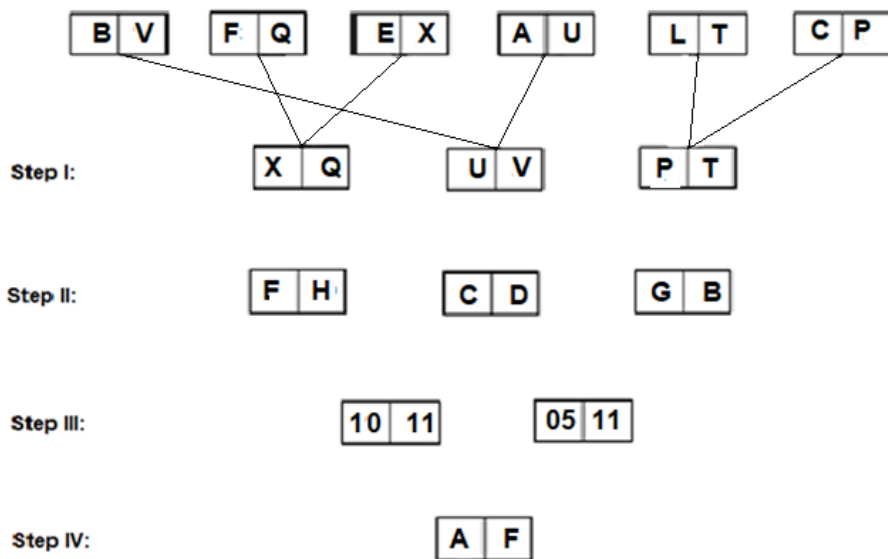
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d. 86

e. 82

Direction(31-35): Study the given information carefully and answer the given question-ns.

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.

C Y G P B W H R T D O S

31) Which among the following numbers are in 1st table of the step III?

- a. 12, 17
- b. 12, 16
- c. 13, 16
- d. 17, 16
- e. None of these

32) Which of the following letters are in 2nd table of the step II?

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- a. W, P
- b. R, Y
- c. J, D
- d. I, G
- e. None of these

33) Which of the following letters are in step IV?

- a. D, E
- b. T, Z
- c. Y, U
- d. I, O
- e. D, D

34) Which is 3rd element from the left in step-2?

- a. E
- b. G
- c. I
- d. J
- e. None of these

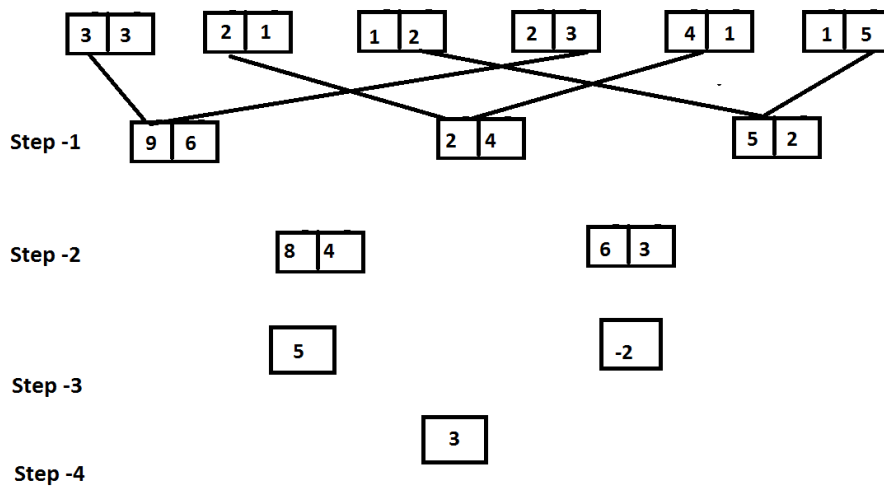
35) If all the number of the second last step are added then what will be the answer?

- a. 55
- b. 54
- c. 58
- d. 56
- e. 52

Directions(36-40): Study the given information carefully and answer the given questions.

Expected Input Output Part 1 for Upcoming Mains Exam

An input-output is given in different steps. Some mathematical operations are done in each step. No mathematical operation is repeated in next step but it can be repeated with some other mathematical operation (as multiplication can be used with subtraction in step 1 and same can be used with addition in step 2).



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 4

1 5

3 1

2 2

1 2

4 3

36) Which of the following represents the product of the first digit of the second value and the second digit of the first value in step II of the given input?

- a. 10
- b. 25
- c. 2
- d. 35
- e. 5

37) Which of the following combinations represent the second digit of the third block and the first digit of the second block in step I of the given input?

- a. 3, 2
- b. 2, 4

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c. 4, 2

d. 2, 2

e. 2, 8

38) If the value '2' is multiplied with the final output then what will be the resultant value?

a. 18

b. 16

c. 06

d. 12

e. -12

39) Find the difference of two numbers obtained in Step II?

a. 30

b. 60

c. 21

d. 45

e. None of these

40) What is the sum of the numbers of step-3?

a. 3

b. 6

c. 2

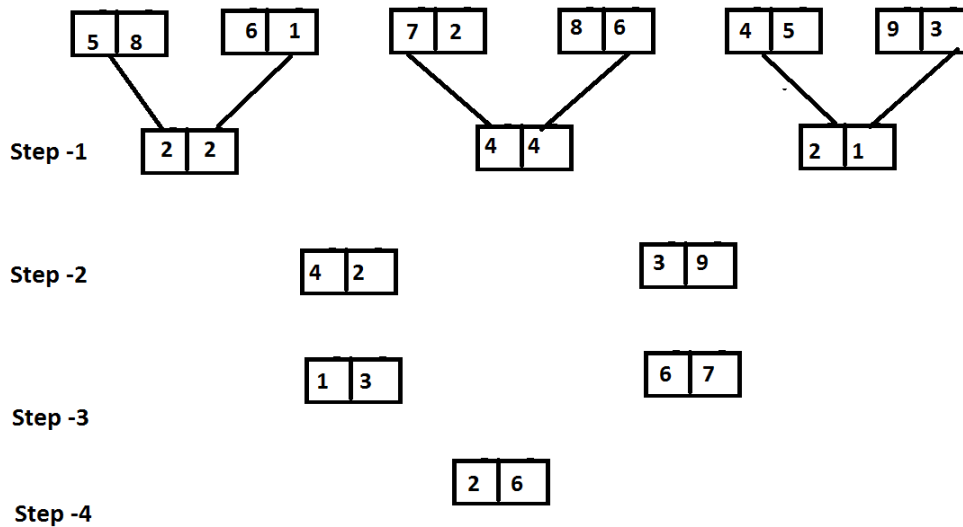
d. 4

e. None of these

Directions (41-45): Study the given information carefully and answer the given question.

Expected Input Output Part 1 for Upcoming Mains Exam

An input-output is given in different steps. No mathematical operation is repeated in next step but it can be repeated with some other mathematical operation (as multiplication can be used with subtraction in step 1 and same can be used with addition in step 2).



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

8 3

5 4

7 3

6 4

3 7

41) What is the sum of the numbers in step 3?

- a. 76
- b. 32
- c. 78
- d. 38
- e. None of these

42) What is the difference between the first block obtained in step 2 and second block obtained in step 3?

- a. 12
- b. 29

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c. 26

d. 14

e. 21

43) What will be the final result of the given input?

a. 26

b. 88

c. 56

d. 42

e. None of these

44) What will be the difference between the sum of numbers in the second last step and the sum of numbers in the second step?

a. 39

b. 48

c. 46

d. 42

e. None of these

45) What is the sum of the numbers in step 2?

a. 76

b. 88

c. 78

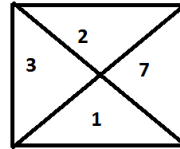
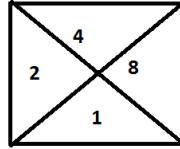
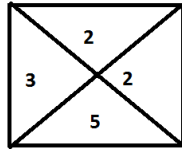
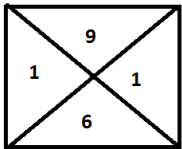
d. 72

e. None of these

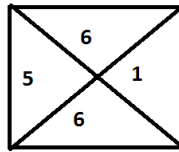
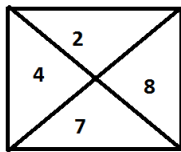
Directions(46-50): Study the given information carefully and answer the given question.

Expected Input Output Part 1 for Upcoming Mains Exam

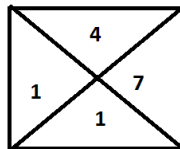
Below are input-output, steps responsive mathematical operations on a set of numbers according to which you need to answer the following questions.



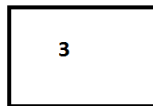
Step-1



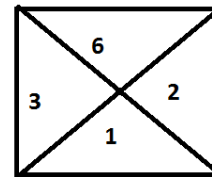
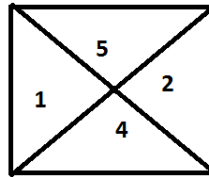
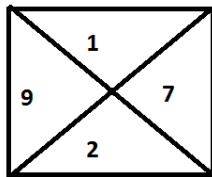
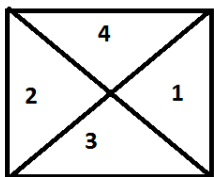
Step-2



Step-3



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.



46) Find the difference between sum of numbers obtained in 1st step and sum of numbers obtained in all other steps?

- a. 25
- b. 35
- c. 20
- d. 15

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e. None of these

47) How many elements in step 1(unique) are multiples of 3?

a. 3

b. 1

c. 2

d. 4

e. None of these

48) If all the numbers in step 2 are multiplied with each other and divided by the answer obtained in step 3, and the quotient of the same is divided by the number obtained in step 3, what's the remainder?

a. 0

b. 1

c. 2

d. 3

e. None of these

49) If the numbers 4 and 5 are reversed in step 2, what is the difference between the old output and new output?

a. 0

b. 1

c. 2

d. 3

e. None of these

50) What is the sum of the numbers in step 2?

a.17

b.16

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- c. 14
- d. 13
- e. None of these

Solutions and Detailed Explanation :

Solutions (1-5):

Given input is

262 153 237 308 156 261 482 555

Step I: Divide all the even numbers by 2 and then subtract 1 from the obtained numbers and divide all the odd numbers by 3 and then subtract 1 from the obtained numbers.

Step II: Sum of first and 2nd number from the left side of step I then difference of 2nd and 3rd number then sum of 3rd and 4th number and so on.

Step III: Add all the digits of each number.

Step IV: Multiply odd number by 2 and even number by 3.

INPUT	262	153	237	308	156	261	482	555
Step I.	130	50	78	153	77	86	240	184
Step II.	180	28	231	76	163	154	424	
Step III.	09	10	06	13	10	10	10	
Step IV.	18	30	18	26	30	30	30	

- 1. a
- 2. c
- 3. c
- 4. b
- 5. c

Expected Input Output Part 1 for Upcoming Mains Exam

Solutions (6-10):

Step I: First digit of first column is multiplied by the 2nd digit of 4th column and 2nd digit of 1st column is multiplied by 1st digit of 4th column.

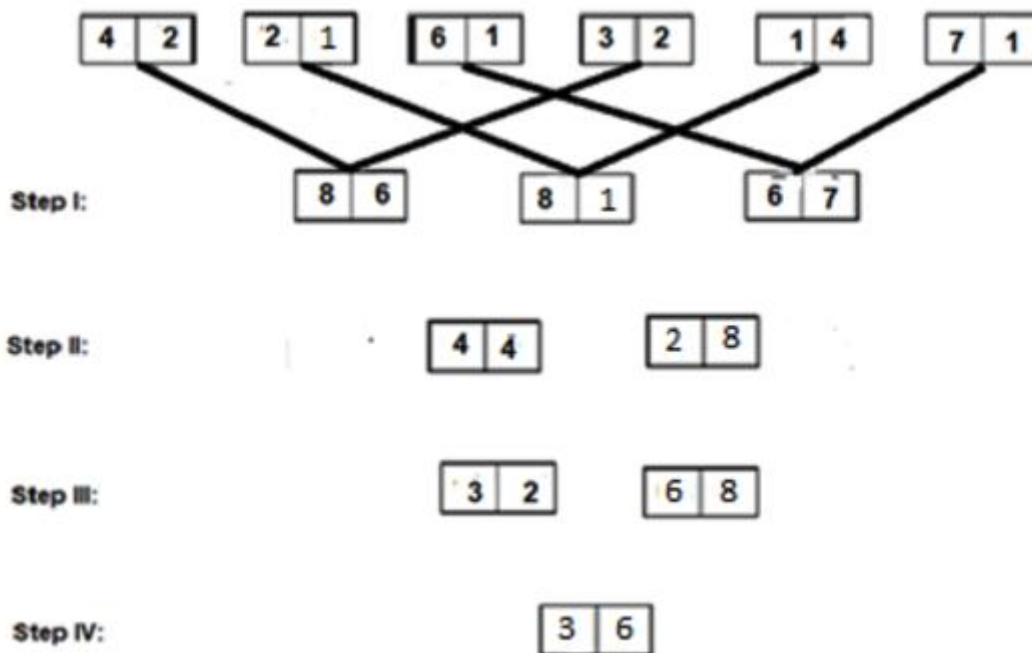
Similar operation is applied on the 2nd and 3rd column with 5th and 6th columns respectively.

In step II: Addition of 1st digits of all the columns and then multiply by 2, similarly addition of 2nd digits of all the columns and then multiply by 2.

In step III: Square each digit in first and 2nd column and then add both the squared number of each column of step II.

In step IV: Subtract 1st digit of 1st column with the 1st digit of 2nd column and similarly subtract the 2nd digit of 1st column with 2nd digit of 2nd column of step III.

The final arrangement is as follows:



- 6. e
- 7. c
- 8. b
- 9. c
- 10. d

Expected Input Output Part 1 for Upcoming Mains Exam

Solutions(11-15)

Step 1: Add the digits within blocks. Resultant of 1st block is summed with the resultant of 2nd block and obtained sum is multiplied with smallest number among them. In the same way resultant of 3rd block and 4th block is added, resultant number is multiplied with smallest number among two and so on.

Example, consider 1st two blocks

23 and 73

Sum of digits of 23 = 5

Sum of digits of 73 = 10

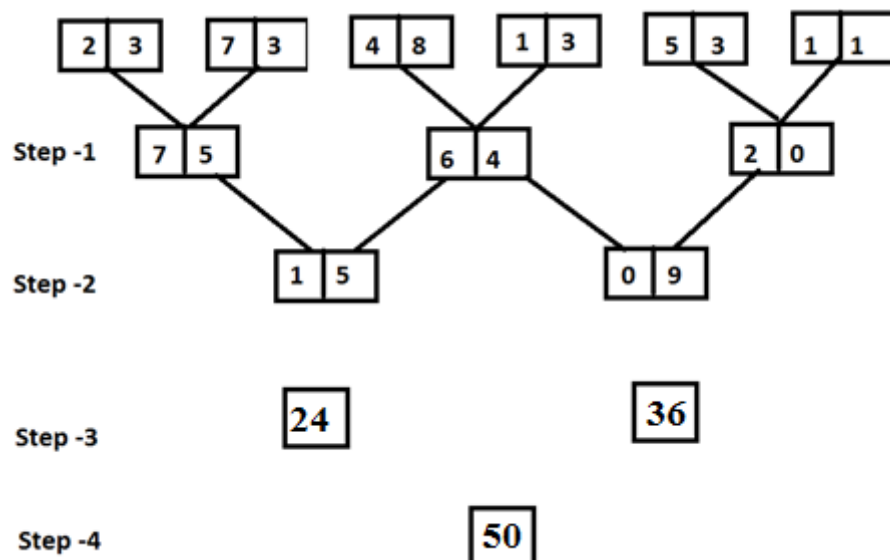
Then adding both result = $5 + 10 = 15$.

Multiplying with smallest number among them = $15 \times 5 = 75$. And So on.

Step 2: 1st digits of each block of step 1 is added to a get single block and the second digits of each block is added to form a single number.

Step 3: Add within the blocks of step 2 and then multiply with 4.

Step 4: Add both block to obtained result to get single number.



11. a

12. d

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13. c

14. d

15. b

Solutions (16-20)

Step 1: Numbers in consecutive block is added, then taking square root of the sum.

Example,

$$59 + 41 = 100$$

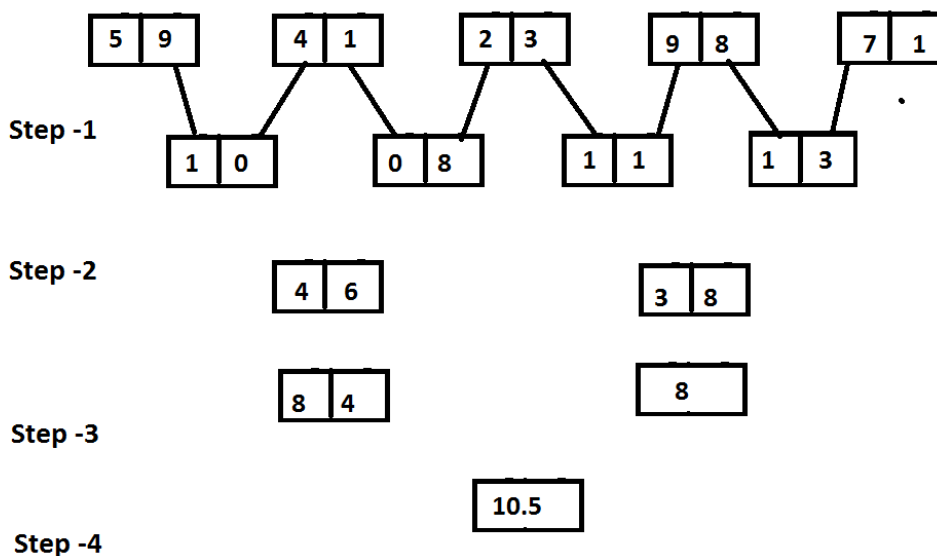
$$41 + 23 = 64$$

$$23 + 98 = 121 \text{ so on}$$

Step 2: Number in 1st block and last block is added then doubled. Number in 2nd block and 3rd block is added, then the number is doubled.

Step 3: Sum of step 2 and difference of Step 2 is taken.

Step 4: Larger number is divided by smaller number.



16. d

17. b

Expected Input Output Part 1 for Upcoming Mains Exam

18. c

19. a

20. d

Solution(21-25)

Step 1: This step tells us the number of alphabets in between the two given letters.

Step 2: The arithmetic mean of the two numbers is taken and the corresponding alphabet is inserted as per dictionary order.

Step 3: This is the square of the arithmetic mean.

Step 4: Sum of the two numbers ($9 + 36 = 45$) and the number is added with itself up to a single digit ($4+5=9$).

Input:

D		G		L		U
---	--	---	--	---	--	---

Step -1

2		4		8
---	--	---	--	---

Step -2

C		F
---	--	---

Step -3

9		36
---	--	----

Step -4

9

21. b

22. a

23. d

24. c

25. a

Solutions(26-30)

Expected Input Output Part 1 for Upcoming Mains Exam

Solutions (31-35)

Step I: The 2nd letter (among the two letters of 1st table) is written in second part of second table And the 2nd letter (among the two letters of 4th table) is written in the 1st part of the 2nd table.

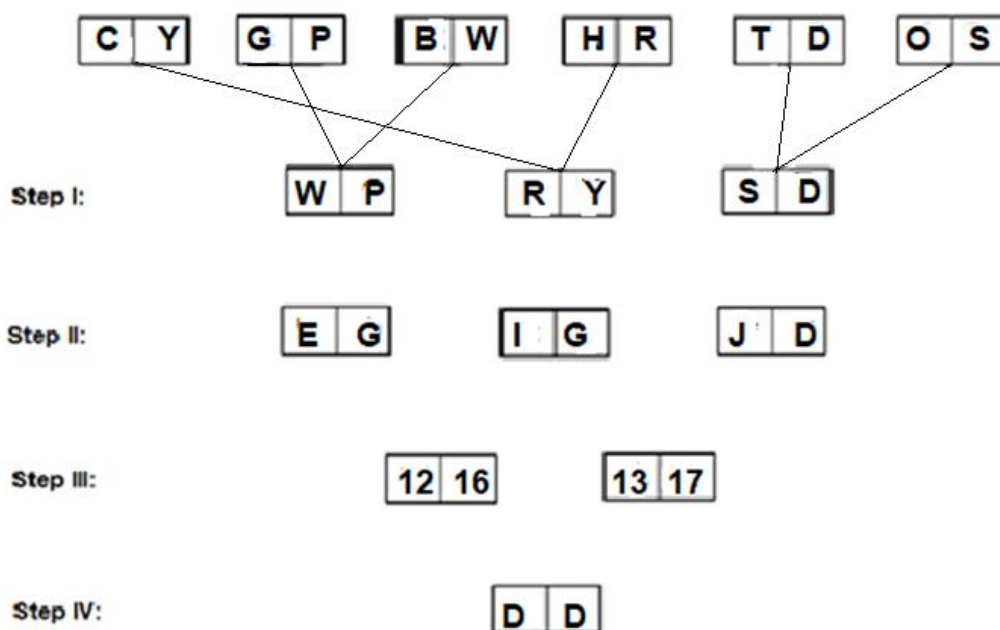
Similarly, the 2nd letter (among the two letters of 2nd table) is written in the 2nd part of the 1st table. And the 2nd letter (among the two letters of 3rd table) is written in the 1st part of the 1st table. Same is repeated for the remaining tables.

Step II: Write each letter according to the sum of place values (in English alphabetically series) of the letter which appears in step 1. Example: If in step 1 first table consists W and P whose place value is 23 and 16 so the sum of each place value i.e. $2+3=5$ which represents E and $1+6=7$ which represents G so the first table of step II contains E and G in 1st and 2nd part respectively and same follows on the rest of the tables.

Step III: Sum of the values of the letters of 1st part of 1st table and 2nd part of the 2nd table and 2nd part of the 1st table and 1st part of 2nd table. Similarly, sum of the values of the letters of 1st part of 2nd table and 2nd part of the 3rd table and 2nd part of the 2nd table and 1st part of 3rd table.

Step IV: The corresponding letter (in alphabetical series) of the difference of the numbers of both the parts of the 1st table is written in the 1st part while the corresponding letter (in alphabetical series) of the difference of the numbers of both the parts of the 2nd table is written in the 2nd part of the table.

The final arrangement is as follows:



31. b

32. d

33. e

Expected Input Output Part 1 for Upcoming Mains Exam

34. c

35. d

Solutions (36-40):

Step I:

(First Block) - Multiply the first digit of the first block with the second digit of the fourth block. i.e. $(3 \times 3) = 9$.

(Second Block) - Multiply the second digit of the first block with the first digit of fourth block. i.e. $(3 \times 2) = 6$.

Same procedure is applied for all the blocks.

Step II:

(First block)- Add the first digit of all numbers in step I and then multiply by 3 and write down the value in reverse order.

i.e. $(9 + 2 + 5) = 16 \times 3 = 48$.

Reverse of 48 is 84.

(Second block) - Add the second digit of all numbers in step I and then multiply by 3 and write down the value in reverse order.

i.e. $(6 + 4 + 2) = 12 \times 3 = 36$.

Reverse of 36 is 63.

Step III:

(First block) - Subtract the second digit of second block by the first digit of the first block.

i.e. $(8 - 3) = 5$.

(Second block)- Subtract the first digit of second block by the second digit of the first block.

i.e. $(4 - 6) = -2$.

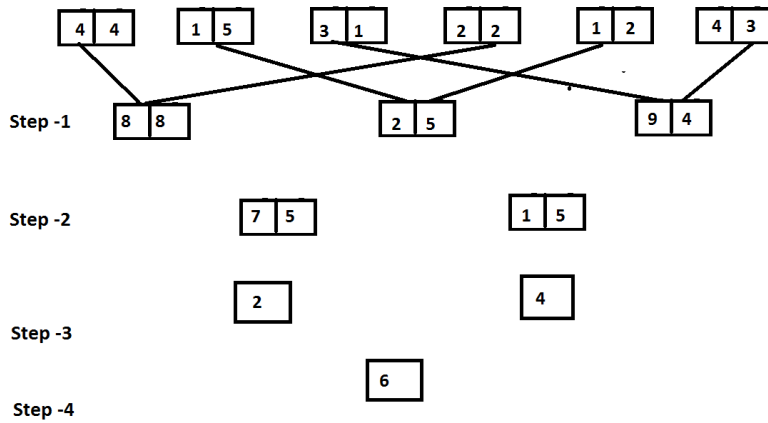
Step IV:

Add both numbers.

i.e. $[5 + (-2)] = 3$.

Expected Input Output Part 1 for Upcoming Mains Exam

Same procedure is applied for the given input:



36.e

37. c

38. d

39. b

40. b

Solutions (41-45):

Step 1:

Difference between the product of first digits from both the blocks and product of second digits from both the blocks i.e. $5 \times 6 = 30$ and $8 \times 1 = 8$.

Difference between 30 and 8 is 22.

Same process is applied in all pair of blocks.

Step 2:

In this step, first digit of each block is added and then multiplied by 3 and the result is added to 18 i.e. $(2 + 4 + 2) \times 3 + 18 = 42$

Same process is to be repeated (on second digits of all three blocks) to get the second block.

Step 3:

Expected Input Output Part 1 for Upcoming Mains Exam

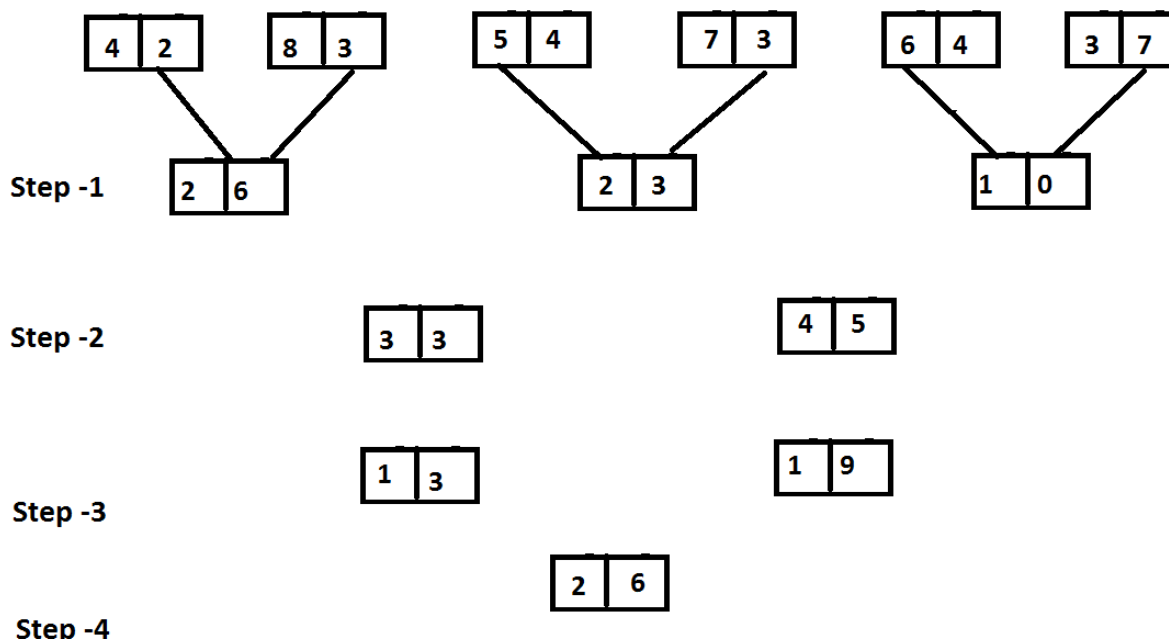
In this step, square of first digit of first block and square of first digit from second block is added and then product of first digit from both the blocks is subtracted from it.

Same process is done on second digits of previous blocks to get the second block of this step.

Step 4:

Add the first digit of both block and make difference in 2nd digit of both block

Same procedure is applied for the given input:



41. b

42. d

43. a

44. c

45. c

Solutions (46-50):

In Step 1, the corresponding elements (digits) from circle 1 and circle 4 are added and are represented in the first circle. (If it is greater than 9, then the digits are further added. Example, 11 would give us 2)

$$4 + 6 = 10 \Rightarrow 1 + 0 = 1$$

Expected Input Output Part 1 for Upcoming Mains Exam

$$1 + 2 = 3$$

$$3 + 1 = 4$$

$$2 + 3 = 5$$

And the second circle is obtained by adding the corresponding elements from circle 2 and 3 similarly.

For obtaining step 2, we subtract both the corresponding elements from both circles and take the positive value to get further elements.

$$1 - 6 = -5 \text{ ---- taken as } 5$$

$$3 - 9 = -6 \text{ ----taken as } 6$$

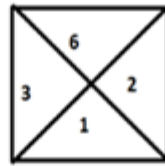
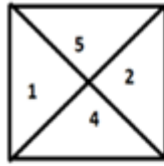
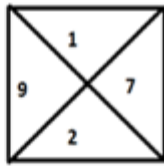
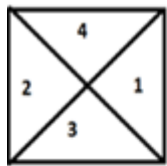
$$6 - 4 = 2$$

$$1 - 5 = -4 \text{ taken as } 4$$

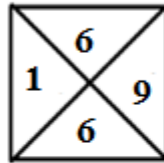
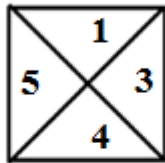
The ouptut is obtained by adding the horizontal elements and subtracting the sum of the vetical elements from them:

$$(6 + 4) - (5 + 2) = 3$$

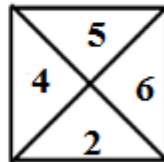
Expected Input Output Part 1 for Upcoming Mains Exam



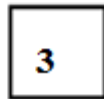
Step-1



Step-2



Step-3



46. d

47. d

48. a

49. c

50. e

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