BOOST UP PDFS | Reasoning Ability | Input Output Questions (New Pattern Part-1)

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Directions (1-5): Study the given information and answer the questions:

When a number arrangement machine is given an input line of numbers, it arranges them following a particular rule)

The following is an illustration of an input and its rearrangement.

Input-	**65**	**18**	**41**	**53**	**72**	**34**	**89**	**26**
Step1-	**195**	**36**	**123**	**159**	**144**	**68**	**267**	**52**
Step2-	**159**	**159**	**36**	**303**	**76**	**335**	**215**	
Step3-	**45**	**45**	**18**	**0**	**42**	**45**	**10**	
Step4-	**22.5**	**22.5**	**9**	**0**	**21**	**22.5**	**5**	

Step 4, is the last step of the above arrangement as the intended arrangement is obtained)

As per the rules followed in the given steps find out the appropriate steps for the given input:

Input: 25 22 93 56 17 74 39

1. What is the sum of the numbers at both the ends in step III of the given arrangement?

a) 36 b) 63 c) 60 d) 123 e) None of the above

2. Which element is 2nd to the right of the one which is 4th to the left element in step I?

a) 112 b) 44 c) 148 d) 75 e) None of these

3. What is the product of the numbers which is 3rd from the right end and 3rd from the left end in final step of the given arrangement?

a) 189 b) 72 c) 13.5 d) 180 e) No such step

4. How many perfect squares is/are from step I to final step?

a) 2 b) 0 c) More than 2 d) 3 e) None of these

5. What is the difference between the number which is extreme left and extreme right in step 2?

a) 234 b) 278 c) 145 d) 198 e) None of these

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

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.

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

Input: 189 202 273 357 188 430 525 356

Step 1: 61 98 89 117 91 212 173 175

Step 2: 159 9 206 26 303 39 348

Step 3: 15 9 8 8 6 12 15

Step 4: 7.5 4.5 4 8 2 4 5

Step IV is the output of the above input.

As per the rules followed in the given steps find out the appropriate steps for the given input:

Input: 327 842 276 327 196 567 387 424

6. Which of the following is the Square of the number which is fourth from the right end in the last step?

a) 36 b) 72.25 c) 9 d) 16 e) None of these

7. What will be the Cube root of the resultant which is obtained by adding one with the third Number from the left end in step 2 and by multiplying the number by fourth element from the right end in step 3?

a) 27 b) 9 c) 729 d) None of these e) 8

8. If all the numbers in the step 3 are arranged in ascending order from left to right, then how many numbers are not changed from its previous position?

a) One b) Two c) Three d) None e) More than Three

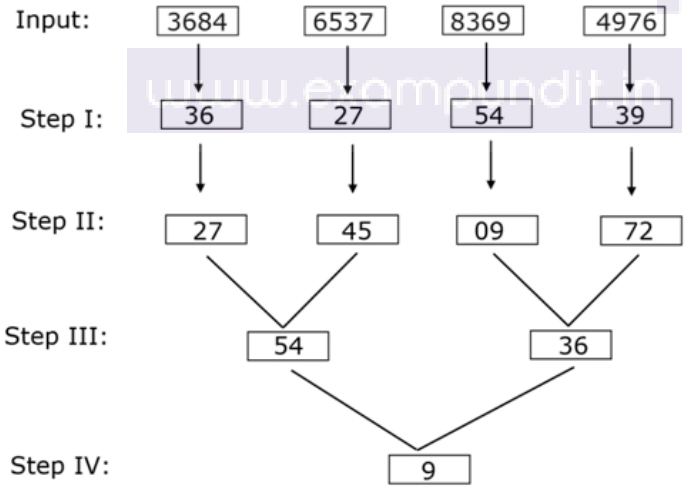
9. Which of the following element is Fifth to the right of the Number which is Seventh from the right end in step 4?

a) 2 b) 12 c) None of these d) 3 e) 8.5

10. What is the sum of second highest and second lowest number in step 2?

a) 366 b) 425 c) None of these d) 396 e) 256

(Directions 11–15): A string of numbers is given as input. The further steps given are obtained by applying certain logic) Each step is a resultant of previous step only. Study the following information carefully and answer the questions given below it.



Step IV is the last step for the above input.

As per above applied logic in above steps, find appropriate step for given input:

Input:

7389 4872 7982 7881

11. What is the difference of highest to lowest number in step II?

a) 33 b) 9 c) 48 d) 24 e) None of these

12. Which of the following will be the output in step IV?

a) 12 b) 23 c) 21 d) 19 e) None of these

13. What will be resultant when highest number in step III is divided by lowest number is same step?

a) 24 b) 28 c) 32 d) 18 e) None of these

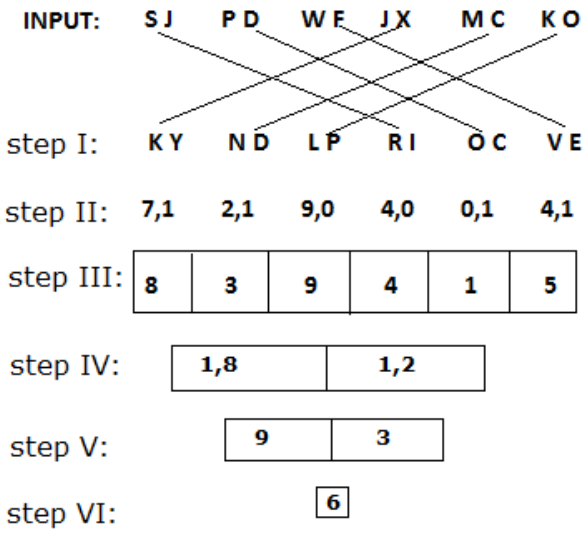
14. What is the remainder when highest number in step I is divided by lowest number in step II?

a) 9 b) 3 c) 13 d) 15 e) None of these

15. What is cube value of final step?

a) 2197 b) 1331 c) 9261 d) 1728 e) None of these

(Directions 16–20): A string of numbers is given as input. The further steps given are obtained by applying certain logic) Each step is a resultant of previous step only. Study the following information carefully and answer the questions given below it.



Step VI is the last step for the above input.

As per above applied logic in above steps, find appropriate step for given input:

INPUT: G S K A V P J V I D L M

16. What is the difference between highest and lowest number in step II? (consider two digit as a whole number)

a) 51 b) 64 c) 13 d) 0 e) None of these

17. Which of the following will be the output in step VI?

a) 7 b) 3 c) 1 d) 5 e) None of these

18. What will be resultant when highest number in step III is divided by 2ndlowest number is same step?

a) 1.5 b) 2 c) 2.3 d) 7 e) None of these

19. What is the square value of final step?

a) 4 b) 16 c) 144 d) 9 e) None of these

20. What is the total sum of Step 3?

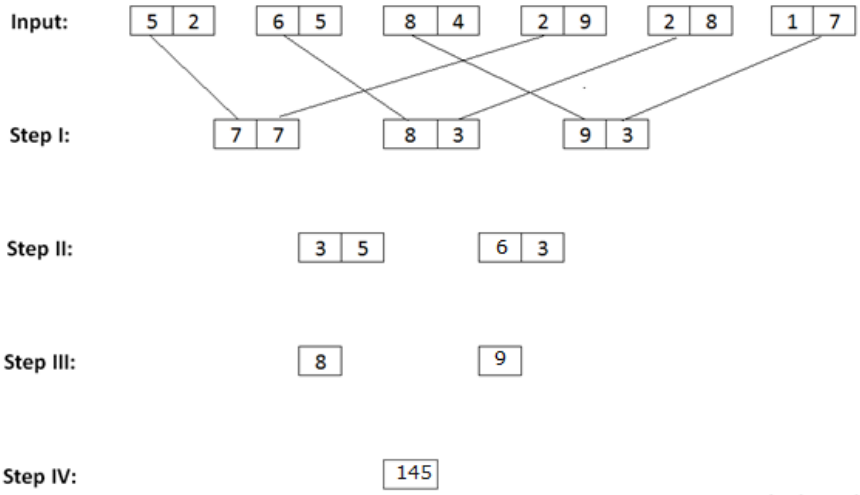
a) 41 b) 27 c) 55 d) 90 e) 25

Directions (21-25): Study the following information and answer the questions given below:

A number arrangement machine arranges two digit numbers into a typical manner. Each step is obtained by applying an operation different from the previous step. Each step gives output taking input from the previous step.

Note: In step 3, single digit is to be obtained, if it is two digit number in step 3, then do the same process till you obtained the single digit. for

eg.67>6+7=>13=>1+3=4 or 6*7=>42=>4*2=8.



Step IV is the last step for the above input.

Using the above illustration, solve the following input:

Input: 6 1 | 5 3 | 7 5 | 3 9 | 2 6 | 1 4

21. What will be the final value obtained after solving the input?

a) 73 b) 77 c) 84 d) 75 e) None of these

22. What would be the sum of the numbers obtained in step II? (consider two digit as a whole number)

a) 65 b) 92 c) 87 d) 68 e) None of these

23. What would be the product of the numbers obtained in step III?

a) 27 b) 36 c) 24 d) 52 e) None of these

24. What is the sum of first digit from left end in step III and the third number in the step I from left end? (consider two digit as a whole number)

a) 12 b) 15 c) 85 d) 84 e) None of these

25. What is the product of second digit from right end in step II and the number formed in the last step?

a) 365 b) 475 c) 385 d) 455 e) None of these

(Directions 26–30): Study the following information carefully and answer the questions given below.

Number arrangement machine when given an input line of numbers rearranges them following a particular rule in each step.

Condition:

1) If an odd number comes at even numbered position, then the first digit of the number is changed to #

2) If an Even number comes at odd numbered position, then the Second digit of the number is changed to @

Note: The position of Numbers and Blanks are taken from left to right

Input: 28 23 15 73 37 44 88 62

Step 1: 15 28 23 ___ 37 44 6__ 8__

Step 2: 23 __5 2__ #7 4@ 6@ 8__ #3

Step 3: 2@ #3 #5 ___ 4__ 8@ #3 6__

Step 4: #7 2@ ___ #5 8@ #3 6@ ___

26. What will comes in Blank2 in step 2?

a) @ b) # c) 2 d) 4 e) 8

27. Which of the following element immediately followed by #5 in step 3?

a) @7 b) #7 c) 7@ d) #3 e) 3@

28. What will comes in Blank1 and Blank 2 in step 4 respectively?

a) 4#, #3 b) 4@ , #7 c) #3, 4@ d) 5#, 4@ e) None of those given as option

29. Which of the following element immediately followed by #3 which is second from the right end in step 3?

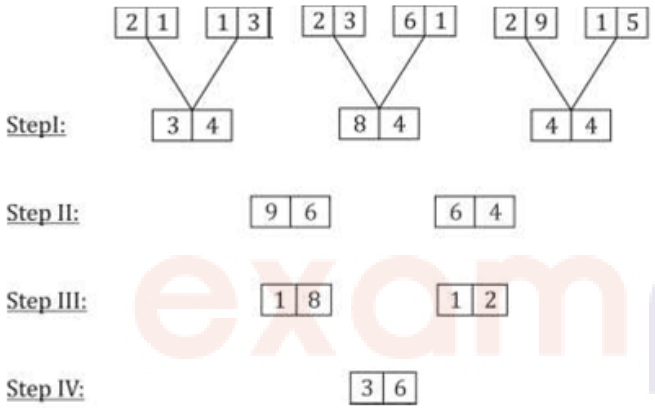
a) 6# b) #6 c) @6 d) 6@ e) None of these

30. What will come in blank 2 in step 3?

a) Either @ or # b) @@ c) # d) @ e) None of these

(Directions 31–35): 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 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)



Step IV is the last step for the above input.

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.

12 41 17 19 23 11

31. Find the addition of the three numbers obtained in step I?

a) 123 b) 124 c) 125 d) 126 e) None of these

32. Find the multiplication of two numbers obtained in Step III?

a) 600 b) 500 c) 550 d) 575 e) None of these

33. Find the difference between the two numbers obtained in Step II?

a) 28 b) 17 c) 37 d) 27 e) None of these

34. Find the square of number which is obtained in Step IV?

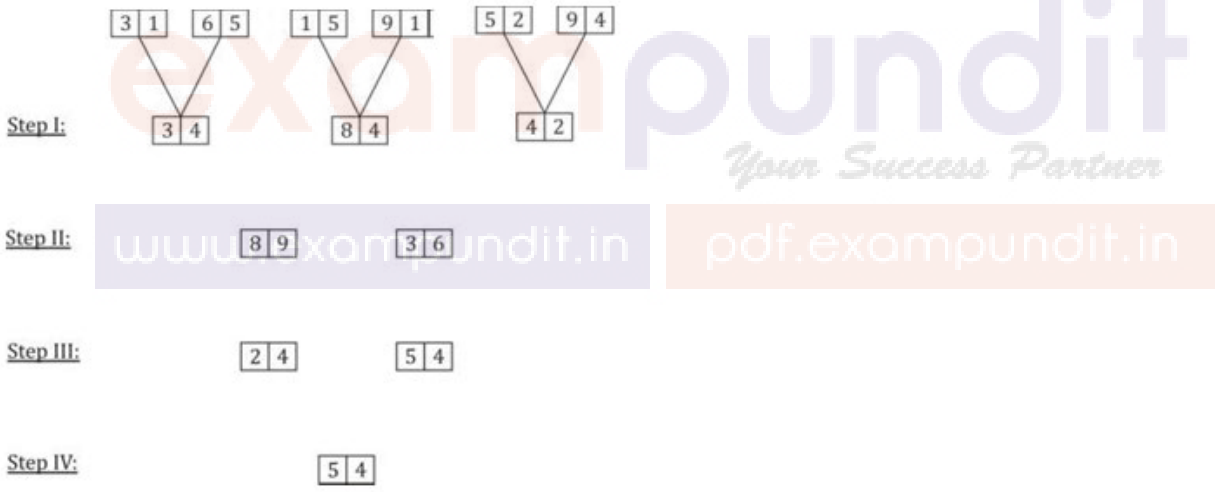
a) 729 b) 676 c) 525 d) 625 e) 1000

35. If digit is exchanged within the each block then find the multiplication of two new numbers obtained in step II?

a) 1525 b) 1456 c) 1460 d) 1458 e) None of these

Directions (36-40): 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 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)



Step IV is the last step for the above input.

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.

41 16 25 38 25 78

36. Find the addition of the three numbers obtained in step I?

a) 101 b) 100 c) 102 d) 103 e) None of these

37. Find the multiplication of two numbers obtained in Step III?

a) 180 b) 160 c) 154 d) 175 e) None of these

38. Find the difference between the two numbers obtained in Step II?

a) 6 b) 4 c) 5 d) 8 e) None of these

39. Find the square of number which is obtained in Step IV?

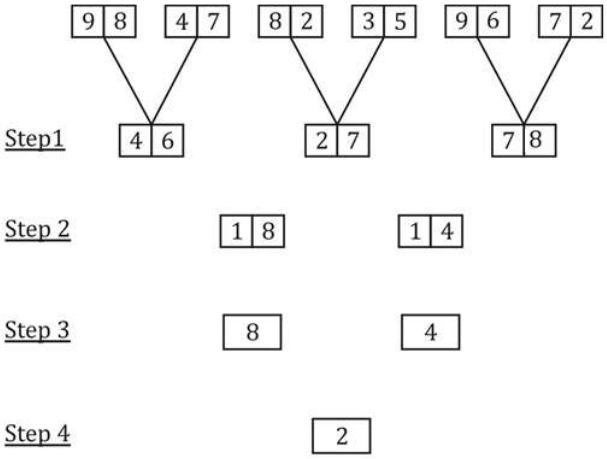
a) 324 b) 625 c) 196 d) 125 e) 361

40. If digit is exchanged within the each block then find the multiplication of two new numbers obtained in step III?

a) 171 b) 154 c) 1054 d) 1071 e) None of these

Directions (41-45): 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 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.

6	5		9	1		3	6		5	4		3	1		5	6

41. Which among the following is the sum of the digits of first block in step 2?

a) 2 b) 3 c) 7 d) 8 e) None of these

42. Which of the following is the sum of the numbers of blocks in step 1?

a) 136 b) 120 c) 234 d) 142 e) None of these

43. Which of the following is the number which will get after multiplication of number of both blocks in step 3?

a) 4 b) 6 c) 12 d) 36 e) None of these

44. Which of the following is the resultant after dividing the first digit of first block in step 1 from the second digit of first block in step 2?

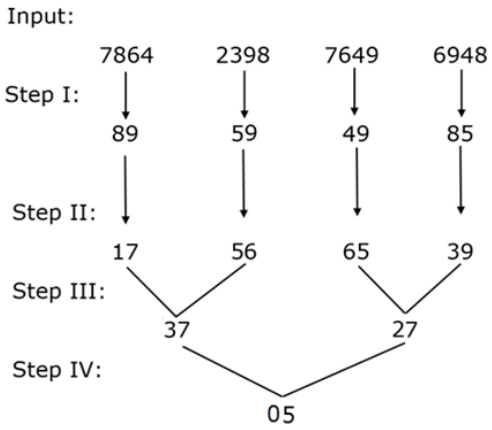
a) 3 b) 2 c) 6 d) 4 e) None of these

45. Which of the following is the resultant of the multiplication of the second digit of third block in step 1 and first digit of second block in step 2?

a) 13 b) 12 c) 16 d) 14 e) None of these

Directions (46-50): A string of numbers is given as input. The further steps given are obtained by applying certain logic) Each step is a resultant of previous step only. Study the following information carefully and answer the questions given below it.

Note: No division is done in any step.



Step IV is the last step for the above input.

As per above applied logic in above steps, find appropriate step for given input:

Input:

3689 9878 3289 2178

46) What will be the difference of highest and lowest number in step II?

a) 21 b) 28 c) 39 d) 32 e) None of these

47) What will be the difference of square of digits of lowest number in step III?

a) 15 b) 55 c) 21 d) 9 e) None of these

48) What will be the sum of digits of all numbers in step I?

a) 54 b) 23 c) 46 d) 28 e) None of these

49) Which of the following is the final output in step IV?

a) 45 b) 36 c) 74 d) 81 e) None of these

50) Which of the following will be the remainder if we divide highest number by lowest number in step III?

a) 1 b) 3 c) 5 d) 7 e) None of these

Answer Key with Explanation

Solutions (1-5)

In this input output question only numbers is arranged in each step. Let us understand the logic behind it- In each step the numbers are arranged.

In step 1: all the even number (input) are multiplied with 2 and all the odd numbers are multiplied with 3.

Step 2: Take the difference of 1st two numbers and then add the next two numbers, and so on.

Step 3: The resultant of the multiplication of its digits in the previous step.

Step4: The numbers in the previous step is divided by 2.

Input-	25	22	93	56	17	74	39
Step1-	75	44	279	112	51	148	117
Step2-	31	323	167	163	97	265	
Step3-	3	18	42	18	63	60	
Step4-	1.5	9	21	9	31.5	30	

1. B
2. C
3. A
4. A
5. A

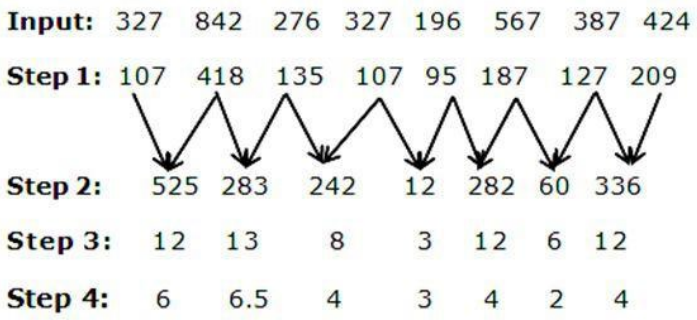
Solutions (6-10)

Step 1: Even number is divided by 2 and then subtract by 3, Odd number is divided by 3 and then subtract by 2

Step 2: +, – , +, -, +, – , +.

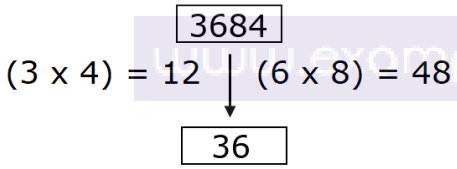
Step 3: Sum of all the digits in each number.

Step 4: The first three numbers from left end is divided by 2 and the last three digits from the right end is divided by 3. The middle number is divided by one.



6. C
7. B
8. B
9. A
10. D

Solution (11-15)

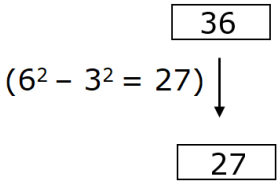


Step I: In this step following logic is applied:

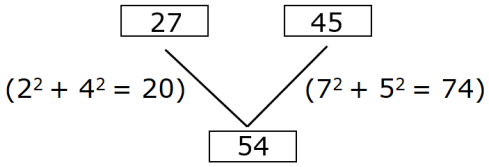
Clearly, in step I result can be obtained from difference of results:

Result = (48 – 12) = 36

Step II: In this step following logic is applied:



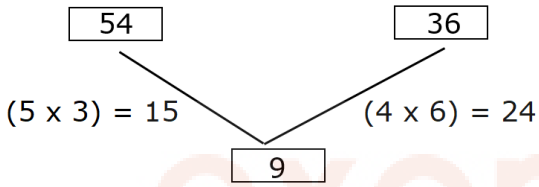
Step III: In this step following logic is applied:



Clearly, in step III result can be obtained from

difference of results:

Result = (74 – 20) = 54



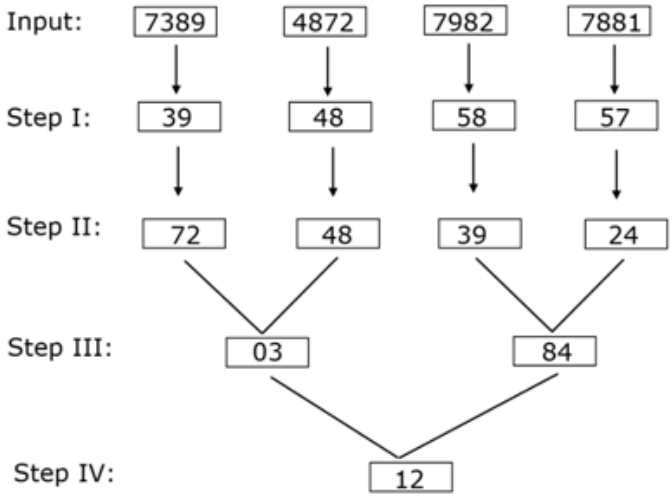
Step IV: In this step following logic is applied:

Clearly, in step IV result can be determined from

Difference of results:

Result = (24 – 15) = 9

From above logical steps we get following results for given input:



11. C
12. A
13. B
14. E
15. D

Solution (16-20)

Step 1: arranged in an alphabetical order of (-1,-1 -1,-1 -1,-1 +1, +1 +1, +1 +1, +1)

Step 2: take the difference of place of alphabet and do reverse shuffling

K=11, W=23 diff = 23-11 =12

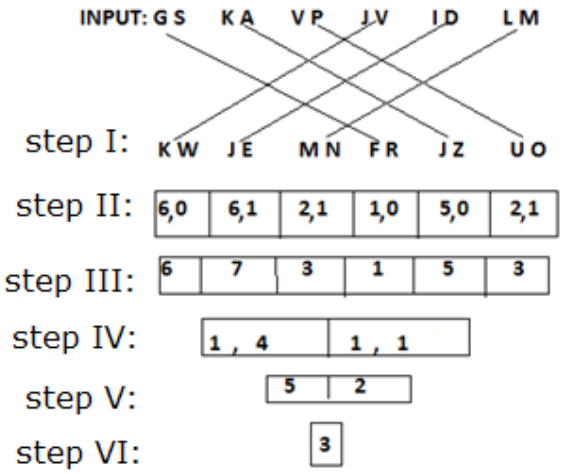
So take 1 2 as 2 1 and place it in extreme right end

Step 3: add the numbers (6+0=6) place it directly

Step 4: add the alternative numbers

Step 5: add the numbers directly (1+4=5)

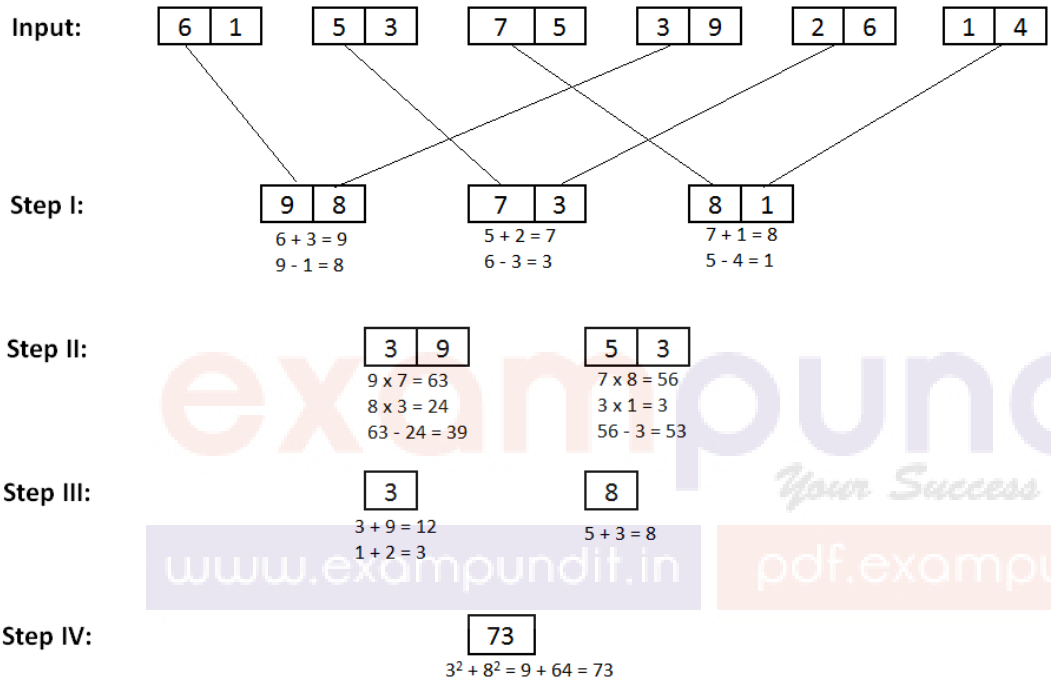
Step 6: take difference (5-2=3)



16. A
17. B
18. C
19. D

20. E

Solution (21-25):



21. A
22. B
23. C
24. D
25. A

Solution (26-30)

Smallest number is arranged from left end and the highest number is arranged from right end. If the number is in coded form then it will considered from the input number.

Input: 28 23 15 73 37 44 88 62

Step 1: 15 28 23 #3 37 44 6@ 88

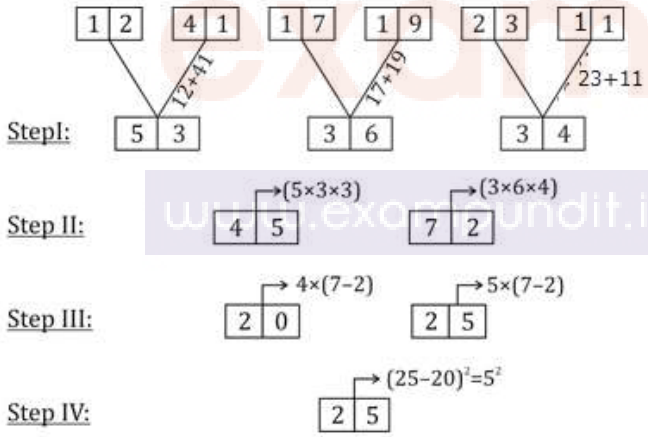
Step 2: 23 #5 2@ #7 4@ 6@ 8@ #3

Step 3: 2@ #3 #5 #7 4@ 8@ #3 6@

Step 4: #7 2@ #3 #5 8@ #3 6@ 4@

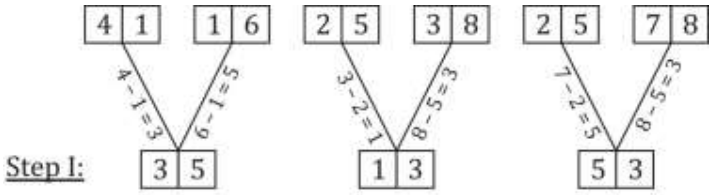
26. A
27. B
28. C
29. D
30. D

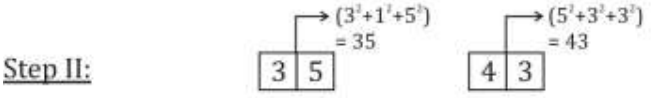
Solution (31-35)

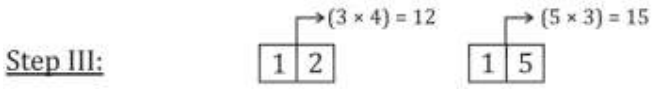


31. A
32. B
33. D
34. D
35. D

Solution (36-40)

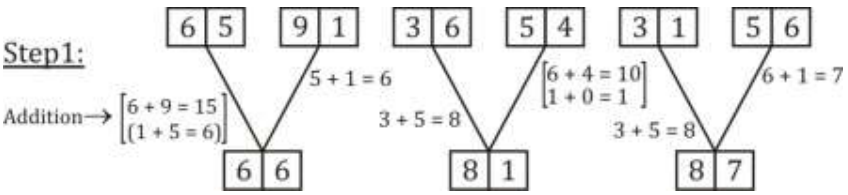






36. A
37. A
38. D
39. A
40. D

Solution (41-45)



Step2:

→ **Addition:** first digit of first and third block
(6 + 8 = 14)
→ **Subtraction:** first digit of second block from the sum
(14 – 8 = 6)
→ **Multiplication:** multiply the resultant by 2.
(6 × 2 = 12)

1 2

→ **Addition:** second digit of first and third block
(6 + 7 = 13)
→ **Subtraction:** second digit of second block from the sum
(13 – 1 =12)
→ **Multiplication:** multiply the resultant by 2
(12 × 2 = 24)

2 4

Step3:

→ **Multiplication:** first digit of first block with both digits of second block & second digit of first block with both digits of second block
[1 × 2 = 2, 1 × 4 = 4]
[2 × 2 = 4, 2 × 4 = 8]
→ **Difference:** both the resultant of 1st multiplication & both the resultant of 2nd multiplication
[4 – 2 = 2, 8 – 4 = 4]
→ **Division:** divide the second resultant from first
$\left(\frac{4}{2}=2\right)$

2

→ **Multiplication:** Second digit of second block with both digits of first block & first digit of second block with both digits of first block.
[2 × 1 = 2, 2 × 2 = 4]
[4 × 1 = 4, 4 × 2 = 8]
→ **Difference:** Both the resultant of 1st multiplication & 2nd multiplication.
[4 – 2 = 2]
[8 – 4 = 4]
→ **Division:** Divide the second resultant from first
$\left(\frac{4}{2}=2\right)$

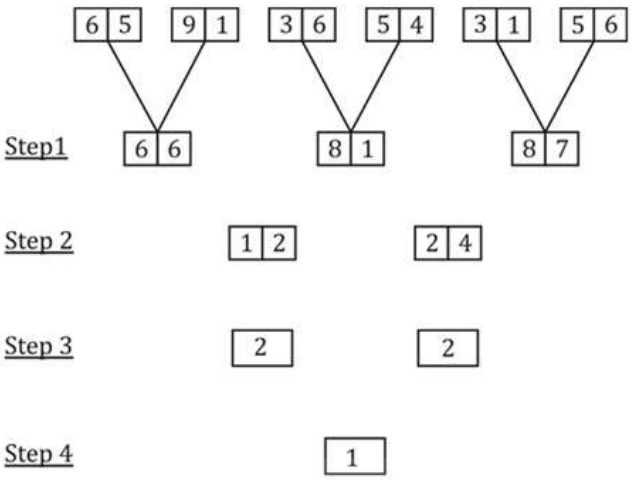
2

Step4:

→ **Division:** divide the digit of both the blocks.

1

So the final solution is-



41. B
42. C
43. A
44. A
45. D

Solution (46-50)

Input:

7864 2398 7649 6948

Step I: In this step following logic is applied:

$$(7^2 + 8^2 = 113) \mid (6 \times 4) = 24$$

7864

89

Clearly, result in step I can be determined by resultant of above results. Result = (113 – 24) = 89

Step II: In this step following logic is applied:

89

$(9^2 - 8^2 = 17)$ ↓

17

Clearly, in step II result can be determined by difference of square of digits.

Step III: In this step following logic is applied:

17 56

(1 x 5 = 5) (7 x 6 =42)

37

Clearly, result in step III can be determined by difference of results.

Result = (42 – 5) = 37

Step IV: In this step following logic is applied:

37 27

(9+49=58) (4+49=53)

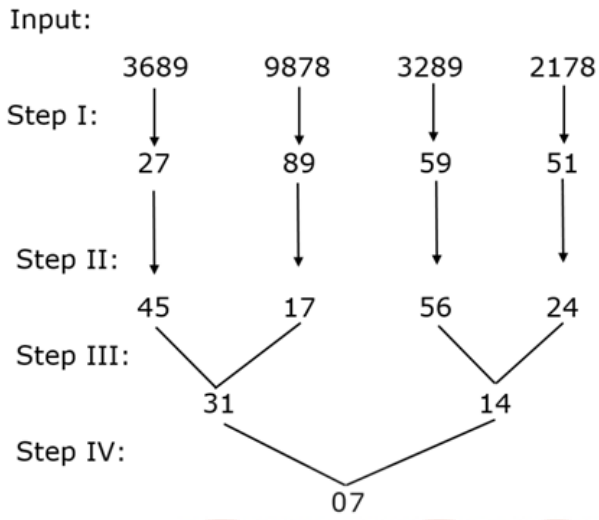
05

Clearly, result in step IV can be determined by difference of results.

Thus, final output is, Result = (58– 53) = 05

From above logical steps we get following results for

given input:



46). Answer: C

Clearly, difference of highest to lowest number = (56 –17) = 39

Hence, option C is correct choice.

47). Answer: A

Clearly, lowest number in step III = 14

Thus, required difference = (16 – 1) = 15

Hence, option A is correct choice.

48). Answer: C

Clearly, required sum = (2 + 7 + 8 + 9 + 5 + 9 + 5 + 1) = 46

Hence, option C is correct choice.

49). Answer: E

Clearly, desired output in step IV = 07

Hence, option E is correct choice.

50) Answer: B

Highest number = 31, lowest number = 14

By dividing , 31/14 the remainder will be ' 3 '

Hence, option B is correct choice.