Chapter 1: We the Travellers - I

1. **Which of the following CAN be implied if the given statement is true?**
   Statement: A 5-digit number is formed using single-digit whole numbers such that the units digit is even and all the remaining digits are odd.
   a) The number definitely lies between 11111 and 99999
   b) The number formed CAN be a multiple of 100
   c) The sum of the digits of the largest such number is 44
   d) The sum of the digits is NOT divisible by 2

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2. **Rohan revealed his 5-digit phone password in a code word to Rajesh where all the digits are NATURAL NUMBERS. Which of the following statements are <u>SUFFICIENT</u> to crack the code?**
   Statement 1: One of these digits is 1, and 2 appears thrice in the password
   Statement 2: The first digit is smaller than all other digits and the 2nd digit is smaller than the 3rd
   Statement 3: The largest digit in the password is 3 and it appears only once
   a) Statements 1 and 2
   b) Statements 2 and 3
   c) All the statements are required
   d) Cannot be determined even after using all the statements

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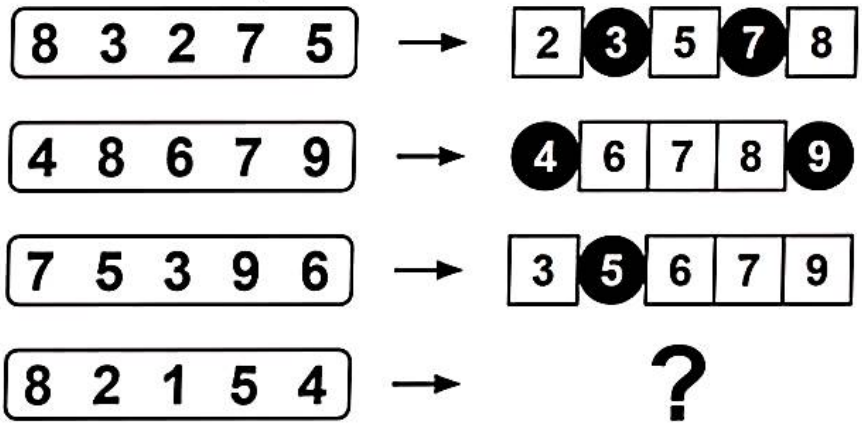
3. **What will come in place of "?"**



a) 1 2 4 5 8
b) 1 2 4 5 8
c) 1 2 4 5 8
d) 1 2 4 5 8

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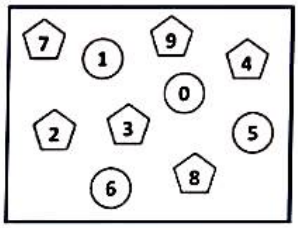
4. **A 5-digit number is formed such that all the digits are different and the sum of all the digits is 10. What is the highest digit this number can have?**
   a) 3 b) 4 c) 5 d) 6

5. **Using the instructions given below, form two numbers.**
Instruction 1: Form the largest 5-digit number using the digits in the 5-sided figures, without repeating any digit.
Instruction 2: Form the smallest 3-digit number using the digits in the circles, without repeating any digit.
What is the sum of the two numbers formed?



a) 99394 b) 93394 c) 98743 d) 98848

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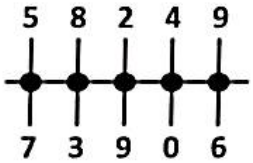
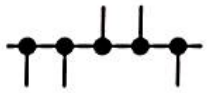
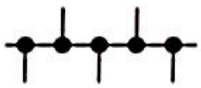
6. **Using the digits at the ends of the vertical lines, form numbers by reading the digits from left to right without rearranging them. Which option represents the greatest even number that can be formed?**



a)  b)  c)  d) 

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7. **A string of digits is given below. At MINIMUM, how many pairs of digits (may or may not be adjacent to each other) must be interchanged such that the second largest 5-digit number is formed from left to right?**
Note: *A digit can change its position any number of times*

Left **0 7 3 6 5** **Right**

a) 2 b) 3 c) 4 d) 5

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8. **There is a 7-digit number X in which all the digits are different. Using the digits of X, two 5-digit numbers Y and Z are formed, such that no digit is repeated within Y or within Z. What is the MINIMUM number of digits that Y and Z must have in common?**

a) 1 b) 2 c) 3 d) 4

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9. **A 5-digit number has the property that the number formed by its first three digits is the same as the number formed by its last three digits (without changing the order of digits). What is the minimum number of times any digit can appear in this number?**

a) 3 b) 1 c) 2 d) 5

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10. **Which digit appears in the tens place of the second largest 5-digit number formed using 1, 5, and 7, where each digit is used at least once?**

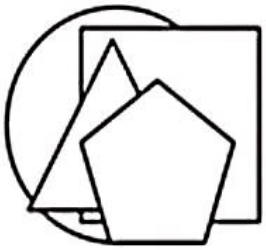
a) 5 b) 7 c) 1 d) Either a or c

The Thinking Spot

P, Q, R, and S each has a different shape - Circle, Pentagon, Square, and Triangle (not necessarily in the same order). They arranged the shapes as shown below, where the Circle is placed at the bottom-most position.

- **S placed his shape immediately above P's shape**
- **There are exactly 2 shapes placed above R's shape**

Which of the following is Q's shape?



(a) Circle (b) Square (c) Pentagon (d) Triangle

Chapter 4: We the Travellers - II

1. **Which statement is DEFINITELY true about a five-digit number that consists of three odd digits and two even digits?**

   a) The sum of all the 5 digits is an odd number
   b) The sum of all the 5 digits is an even number
   c) The sum of all the 5 digits is a prime number
   d) Cannot be determined

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2. **A has 5 gold coins and B has 7 silver coins. B can exchange 2 silver coins for 1 gold coin with A. If B exchanges as many coins as possible, what will be the total number of coins (both gold and silver) with A at the end?**

   a) 8 b) 6 c) 5 d) 2

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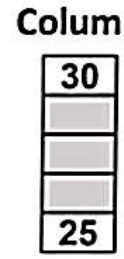
3. **In how many different ways can you fill in all the shaded cells such that the numbers in the column are arranged in descending order and each cell has a unique number?**



   a) 2 b) 3 c) 4 d) 5

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4. **John has Rs. 12 with him. He went to a shop and bought 3 balls and 2 balloons. After buying these items, he still has Rs. 2 remaining, which is exactly the cost of 1 ball. What is the cost of 1 balloon?**

   a) Rs. 1 b) Rs. 2 c) Rs. 3 d) Rs. 4

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5. **If you add 1 to the digit in the ones place and subtract 2 from the digit in the tens place in the numbers given below, how many of the new numbers will be even?**

   4434, 2655, 3561, 1636, 1253, 8094, 1371, 3038, 2335, 1045

   a) 5 b) 6 c) 7 d) 8

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6. **You have to place 4 numbers from 1, 2, 3, 4, and 5 in the squares below to satisfy the given comparisons. How many different arrangements of numbers are possible if box B contains number 1? Note:** *You cannot use the same number twice in the same arrangement*

   a) 8 b) 9 c) 11 d) 12

7. **Bob has 4 coins with different values: 2, 4, 6, and 8.**
Coin C is worth more than Coin A.
The total value of Coins B and C is equal to the value of Coin D.
Which TWO coins can Bob use to buy a candy that costs Rs. 14?

a) Coins A and D b) Coins B and D c) Coins A and C d) Coins C and D

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8. **How many different three-digit even numbers can you make using the digits given below?**
Note: *You can use any one, any two, or all the digits, and you may repeat the digits*

5 0 9

a) 3 b) 4 c) 5 d) 6

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9. **X is a 4-digit number which has only even numbers and only 2 unique digits. What could be the minimum value of the sum of the digits of the number X?**

a) 2 b) 4 c) 8 d) 12

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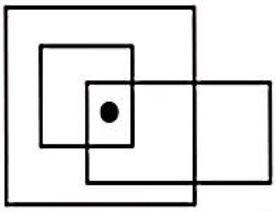
10. **A, B, and C each walk a certain distance.**
- The person who covered the least distance walks 25 km, and another person walks 6 times this distance
- C walks 12 km more than B, while A did not cover the least distance
If only two among A, B, and C are allowed to walk further, how many more kilometres must they walk so that their COMBINED distance (from the start) equals the distance walked by the third person?

a) 92 km b) 78 km c) 88 km d) 62 km

The Thinking Spot

Count the number of rectangles which contain the black circle.
Note: *Please count the squares also as rectangles for the purpose of this question*



(a) 3 (b) 4 (c) 5 (d) 6

Chapter 6: The Dairy Farm

1. **A mason laid 100 bricks in a row. He grouped bricks together, where every group has 25 bricks. If 8 bricks from each group are removed, then how many bricks are left in total?**

   a) 32 b) 64 c) 68 d) 92

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2. **Two types of boxes, A and B, are being transported. Each carton can hold either 8 boxes of type A or 10 boxes of type B. If a total of 76 boxes were transported, what is the minimum number of cartons required, given that all the cartons are full?**

   a) 6 b) 7 c) 8 d) 9

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3. **8 teams are divided into two pools of 4 teams. The teams within a pool play with every other team in the pool twice. After these matches, the top team from each pool is selected and they play a final to decide the winner. How many matches will be played in total?**

   a) 24 b) 25 c) 28 d) 29

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4. **Raj took an entrance exam where he attempted 38 questions out of 40, out of which he got 3 questions wrong. If the marking scheme per question is shown below, what is the maximum marks Raj could score?**

Section A (25 Questions)	Section B (15 Questions)
Correct Answer : +2	Correct Answer : +3
Wrong Answer : -2	Wrong Answer : -2
Un-attempted : 0	Un-attempted : -1

   a) 76 b) 79 c) 81 d) 83

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5. **80 kg of material needs to be transported to a place that is 10 km away.**

   The material must be divided into only one fixed load size for the entire transport. The possible load sizes are 10 kg, 20 kg, or 40 kg. Any number of couriers may be used.

   Each courier:

   - **Charges ₹10 per hour**
   - **Travels at 10 km/hr when empty**
   - **Travels at 5 km/hr while carrying 10 kg**
   - **Travels at 2 km/hr while carrying 20 kg**
   - **Travels at 1 km/hr while carrying 40 kg**

   A courier can carry at most 40 kg at a time.

   After delivering a load, the courier must return empty before the next trip. Even after the final delivery, the courier returns empty, and all return journeys are charged.

   What is the minimum total cost required to transport all 80 kg of material?

   a) Rs. 220 b) Rs. 240 c) Rs. 260 d) Rs. 280

6. **In a theatre, seats are arranged in rows labelled A to F and columns labelled 1 to 5. If the entire row C and the entire columns 3 and 5 are empty and the rest of the seats are sold out, then how many tickets are sold in total?**

a) 13 b) 17 c) 15 d) 14

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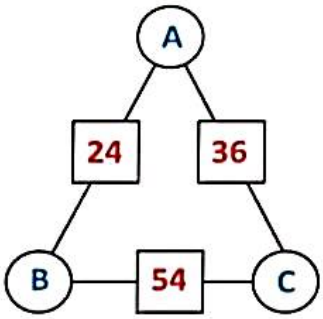
7. **If the number in each square is the product of the two numbers in the circles connected to it, what is the value of B?**



a) 9 b) 6
c) 4 d) Cannot be determined

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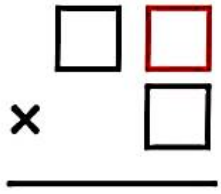
8. **If we place the numbers 5, 6, and 7 in the boxes shown below and the product is 455, which number will go in the red box?**



a) 5 b) 6
c) 7 d) Either option a or option c

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9. **In a classroom, there are 5 desks in each row. The number of rows is not known. First, all the desks in the front row are removed. Then, one desk is added to the leftmost side of each remaining row. After these changes, the total number of desks in the classroom becomes one of the following: 18, 20, 22, or 28.**
Which of these could represent the number of rows remaining after the front row was removed at the start?

a) 3 b) 4 c) 5 d) 7

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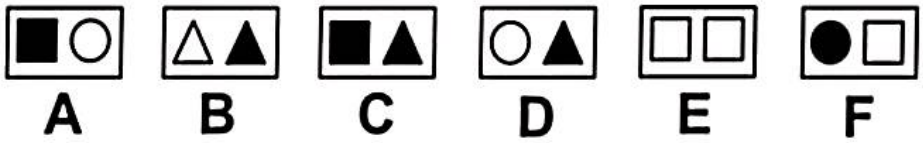
10. **The numbers in Row C have been changed to the numbers in Row D by using a specific rule. Which of the following options shows that rule?**

ROW C	30	60	10	90	150
ROW D	240	480	80	720	1200

a) 8 × C = D b) 8 × D = C
c) C + 210 = D d) Both a and c are correct

Given below are 6 boxes, A, B, C, D, E, and F, each having a pair of shapes. They need to be categorised into 4 groups, as follows:
- If both shapes in a box are of the same colour, they belong to Group 1. If not, they belong to Group 2
- If both shapes in a box are the same (irrespective of their colour), they belong to Group 3. If not, they belong to Group 4
- One box can be part of more than one group
How many boxes belong to BOTH groups 2 and 4?



(a) 3 (b) 4 (c) 2 (d) 1

Chapter 9: Coconut Farm

1. **Given below is a question followed by two statements. Identify which of the following statement(s) is/are necessary to answer the question.**
   Question: Four students are added to a dance class. Will the teacher be able to divide her students evenly into a dance team (or teams) of 8?
   Statement A: If 12 students were added, the teacher could put everyone in teams of 8 without any leftovers.
   Statement B: The number of students in the class is currently not divisible by 8.

   a) Statement A alone is sufficient
   b) Statement B alone is sufficient
   c) Both statements are required
   d) None of the above

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2. **There are 24 soldiers in an army. A commando wants to arrange them in rows and columns such that:**
   - **Each row has the same number of soldiers across all the rows**
   - **Each column has the same number of soldiers across all the columns**
   - **Several rows and columns are formed**

   In how many different ways can this arrangement be done? Note: *Number of rows and columns are not same*

   a) 4 b) 3 c) 6 d) 8

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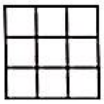
3. **Some natural numbers from 101 to 200 are to be placed in the 3 × 3 grid shown below. The arrangement must follow these rules:**
   1. **In each row and each column, the three numbers must leave different remainders when divided by 3**
   2. **No number can be repeated**

   Which of the following statements is correct?



   a) A row can have three consecutive even numbers
   b) A row can have three consecutive odd numbers
   c) A row can have three consecutive numbers
   d) All of these

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4. **A three-digit number divisible by 18 leaves a remainder of 6 when divided by 12. How many different possible values can this number have?**

   a) 50 b) 26 c) 25 d) 20

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5. **Which of the following operators CANNOT replace "@" to satisfy the condition given below?**
   10 @ 1 < 11

   a) ÷ b) - c) × d) +

6. **Each of the letters A, B, C, D, E, and F is assigned a value, shown by the mathematical expression written above it. If the letters are rearranged in descending order of their values, how many letters will stay in the same position as before?**

42 x 1	22 x 2	60 x 0	16 x 4	12 x 3	10 x 5
A	B	C	D	E	F

a) 0 b) 1 c) 2 d) More than 2

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7. **Captain Malhotra has to align his troop of soldiers into some rows. Each row should have exactly 25 soldiers. He knows the total number of soldiers in his troop. He wants to find out if any soldiers will be left out after the alignment is done. How can he do this?**

a) Divide the total number of soldiers by 5 and check if the remainder left is 0
b) Divide the total number of soldiers by 15 and check if the remainder left is 0
c) Divide the total number of soldiers by 25 and check if the remainder left is 0
d) None of these

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8. **An employee at a pizza shop works for 15 days, receiving 2 slices of pizza each day he works. Each pizza contains 8 slices. By the end of 15 days, how many whole pizzas and individual slices has he received?**

a) 4 pizzas and 2 slices b) 2 pizzas and 6 slices
c) 3 pizzas and 6 slices d) 3 pizzas and 4 slices

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9. **If the multiplication operator is placed only between two even digits and an addition operator is placed in any other case, then which of the following expressions gives the highest output?**

a) 3 _ 2 _ 4 _ 7 b) 5 _ 2 _ 6 _ 3 c) 3 _ 9 _ 2 _ 4 d) 6 _ 4 _ 3 _ 7

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10. **Find the next term of the given series:**

8, 24, 12, 36, 18, 54, ?

a) 27 b) 28 c) 37 d) 39

The Thinking Spot

Exactly one letter of the given word should be replaced with any other letter of the English alphabet to form a number name. How many number names can be formed this way?
Note: *The remaining letters of the word cannot be rearranged to form a meaningful word*

F I N E

(a) 3 (b) 2 (c) 1 (d) 0