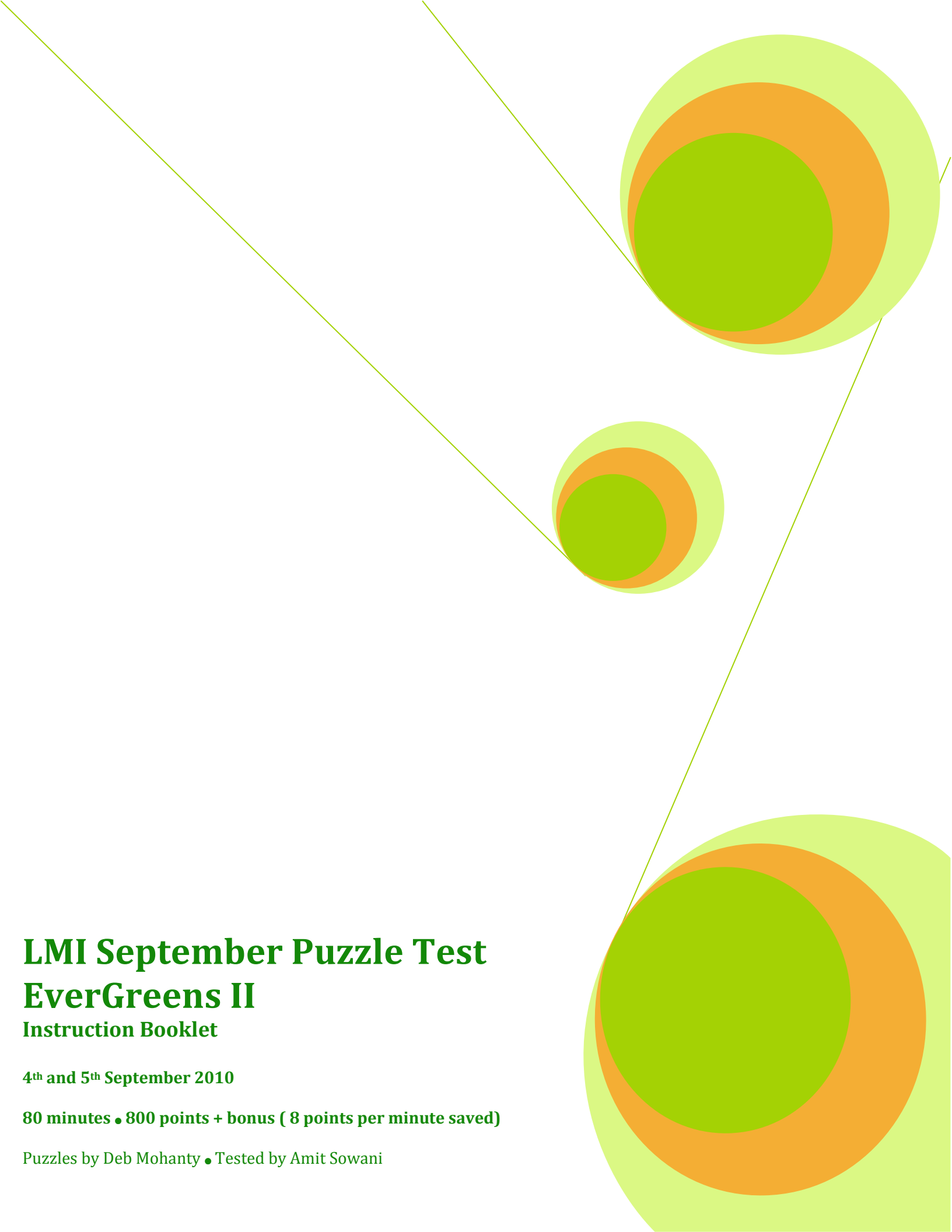


LMI September Puzzle Test
EverGreens II
Instruction Booklet

4th and 5th September 2010

80 minutes • 800 points + bonus (8 points per minute saved)

Puzzles by Deb Mohanty • Tested by Amit Sowani

IMPORTANT LINKS

Submit @ http://logicmastersindia.com/M201009P
Discuss @ http://logicmastersindia.com/forum/forums/thread-view.asp?tid=120&start=1
New Users Register @ http://logicmastersindia.com/forum/register.asp
Check other tests at LMI @ http://logicmastersindia.com/forum/forums/thread-view.asp?tid=60&start=1
Indian Puzzle Championship 2010 @ http://logicmastersindia.com/IPC2010

TEST TIMINGS

The test will be open for 48 hours, starting from 4th September 5:30AM IST till 6th September 5:30AM IST. You may start the test anytime during period. After you start the test, you have 80 minutes to solve and submit all the puzzles. Submission is not allowed after the specified end time — you must start early enough to permit yourself enough solving time.

LIST OF PUZZLES

	P1	P2	P3	P4	P5	Bonus if all correct
Group A (10 X 5 = 50)	ABC Connectors	Black And White	Every Second Breakpoint	Hashi (Bridges)	Rectangles	7
Group B (15 X 5 = 75)	Thermometers	H_2O	Star Battle	Anglers	Queens' Park	19
Group C (20 X 5 = 100)	Different Neighbours	Dart	Letter Snail	Light Up	Area Division	30
Group D (30 X 5 = 150)	Half Dominos	Masyu	Number Pyramid	Mastermind	No 4 In A Row	41
Group E (40 X 5 = 200)	Polymino	Sum Skyscraper	ABCD 2nd End View	Japanese Summo	Dutch Loop	53
Bonus if all correct	6	11	15	19	24	8 points per minute Saved

BONUS SYSTEM

The 25 puzzles are divided into 5 groups, namely Group A, Group B, Group C, Group D, Group E. The grouping is done based on difficulty levels and points. Each group has 5 puzzles, namely P1, P2, P3, P4, and P5. There are 3 different kinds of bonus points to be earned.

- All puzzles in a Group correct: For example if all puzzles in Group C are correct you will get 30 bonus points.
- All Puzzles with same name across all groups are correct: For example if all P4 in the 5 groups are correct, you will get 19 bonus points.
- All puzzles are correct: If all puzzles are correct, you will get Time Bonus in accordance with the minutes saved.

IMORTANT NOTES

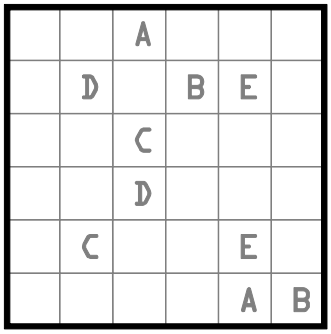
There are some more important notes in the last page. Please read them carefully.

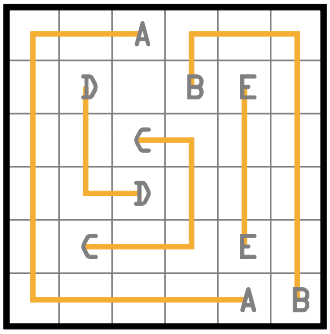
ABC CONNECTORS

Group A – P1

Connect identical letters in the grid with line segments running either in horizontal or vertical direction and passing through centers of cells. No connector crosses or overlaps itself or another connector.

Answer Key: Starting from the top row, enter the number of turns in each row. For the example, answer is '301111'



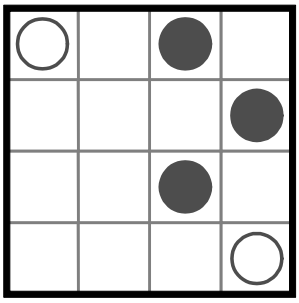


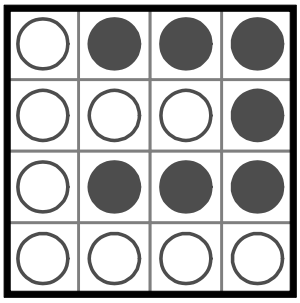
BLACK AND WHITE

Group A – P2

Fill each cell with either a black or white circle. All the white circles must be connected to each other horizontally or vertically. Similarly, all the black circles must be connected to each other horizontally or vertically. No 2x2 region can contain four circles of the same color.

Answer Key: Starting from the top row, enter the number of white circles in each row. For the example, the answer is '1314'



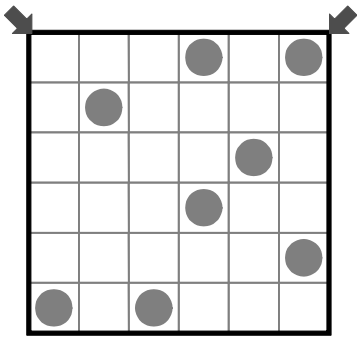


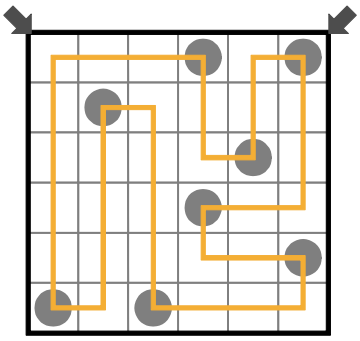
EVERY SECOND BREAKPOINT

Group A – P3

Draw a single closed loop visiting all cells in the grid using horizontal and vertical segments. It does not cross or overlap itself. It makes 90° turn at every cell with a circle. There is also exactly one 90° turn between two consecutive circles that the loop visits.

Answer Key (1): Enter the number of turns along the top-left to bottom-right diagonal. For the example, the answer is '4'
Answer Key (2): Enter the number of turns along the top-right to bottom-left diagonal. For the example, the answer is '3'



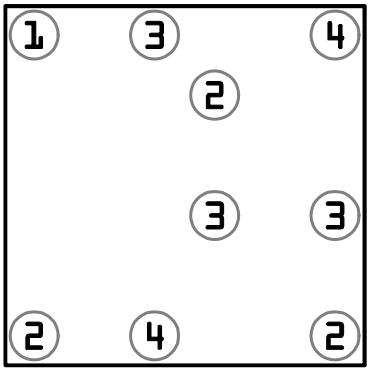


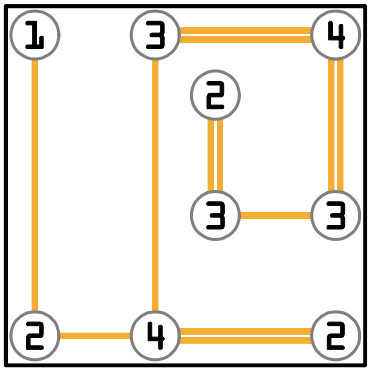
HASHI (BRIDGES)

Group A – P4

Each circle in the grid represents an island. Draw horizontal / vertical bridges between islands such that all islands are connected to each other. Bridges don't cross each other. Bridges don't cross islands, i.e. when they reach an island, they must stop. The number inside each circle represents the number of bridges connected to it. No more than 2 direct bridges exist between 2 islands.

Answer Key (1): Enter the number of horizontal double bridges. For the example, the answer is '2'
Answer Key (2): Enter the number of vertical double bridges. For the example, the answer is '2'



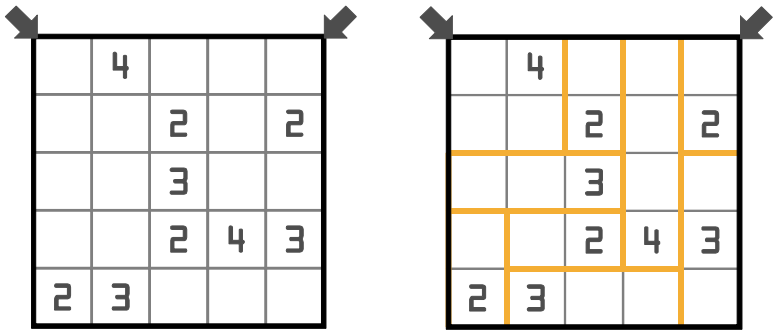


RECTANGLES

Group A – P5

Divide the grid into rectangles so that each rectangle contains exactly one number, and so that each number represents the number of cells of its corresponding rectangle.

Answer Key (1): Enter the number of different rectangles in the top-left to bottom-right diagonal. For the example, the answer is '4'
Answer Key (2): Enter the number of different rectangles in the top-right to bottom-left diagonal. For the example, the answer is '5'

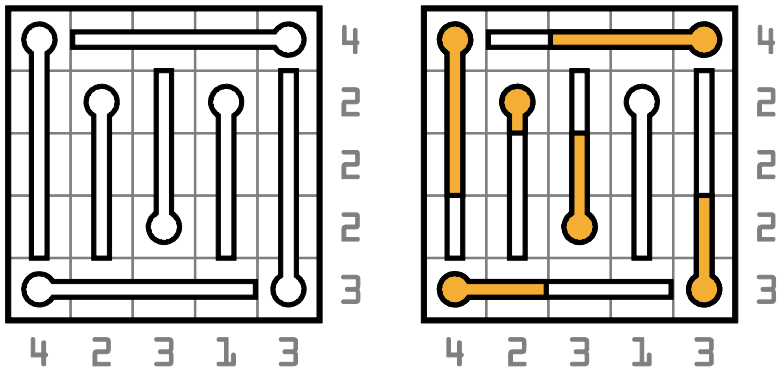


THERMOMETERS

Group B – P1

The thermometers in the grid all have their own level of mercury, which always flows from rounded end towards the other end. Thermometers may be empty, partially or completely full. Numbers around the grid indicate the numbers of cells in the corresponding row / column that contain mercury.

Answer Key (1): Enter the number of thermometers with 1 empty cell. For the example, the answer is '3'
Answer Key (2): Enter the number of thermometers with 2 empty cells. For the example, the answer is '3'

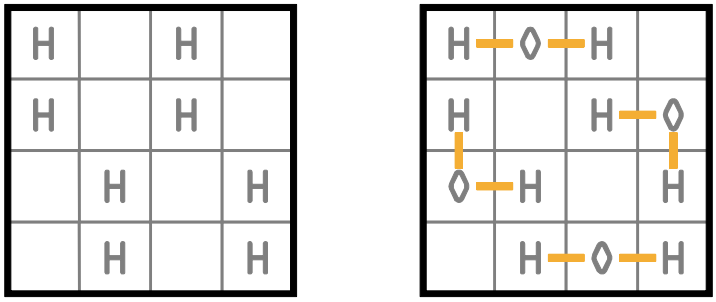


H_2O

Group B – P2

There are a number of water (H_2O) molecules in the grid, each composed of two Hydrogen (H) atoms and one Oxygen (O) atom. Atoms in a molecule connect each other either in a straight line or in a 90° angle. Locate the Oxygen atoms, which do not touch each other, not even diagonally.

Answer Key (1): Enter the number of molecules whose atoms are connected in a straight line. For the example, the answer is '2'
Answer Key (2): Enter the number of rows which have 3 Oxygen atoms. For the example, the answer is '0'

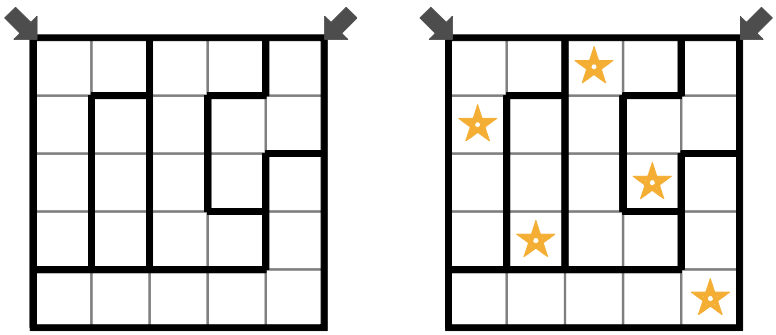


STAR BATTLE

Group B – P3

Place 2 stars (1 in the example) in every row, every column and every dark shaped area. Stars don't touch each other orthogonally or diagonally.

Answer Key (1): Enter 1 for star and 0 for no star for the diagonal from top-left to bottom-right. For the example, the answer is '00001'
Answer Key (2): Enter 1 for star and 0 for no star for the diagonal starting from top-right to bottom-left. For the example, the answer is '00010'

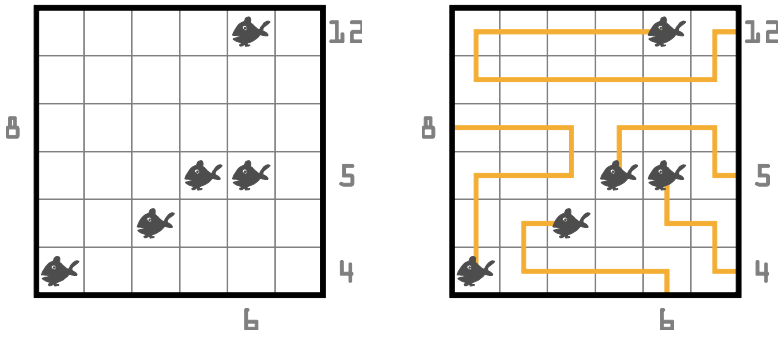


ANGLERS

Group B – P4

The grid represents a lake and the numbers on the periphery represent anglers (fishermen). The fishes shown in the lake are such that every angler gets exactly one fish. The numbers indicate the length of the fishlines which are composed of horizontal and vertical line segments. Draw the fishlines starting from grid border such that no two of them cross or overlap each other.

Answer Key: Starting from the top row, enter the number of turns in each row. For the example, answer is '223333'

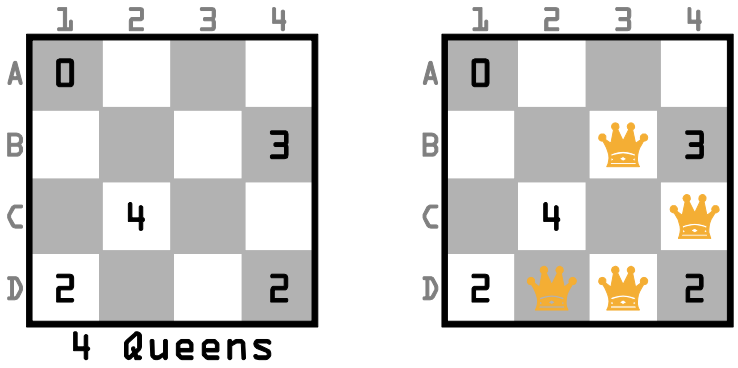


QUEENS' PARK

Group B – P5

Place the given number of queens into empty cells in the grid so that each number equals to the number of directions from which the cell can be attacked by queens. A queen can attack to arbitrary distance horizontally, vertically and diagonally.

Answer Key: Enter the co-ordinates of the queens, sorted alphabetically, and separated by comma. For the example, the answer is 'B3,C4,D2,D3'

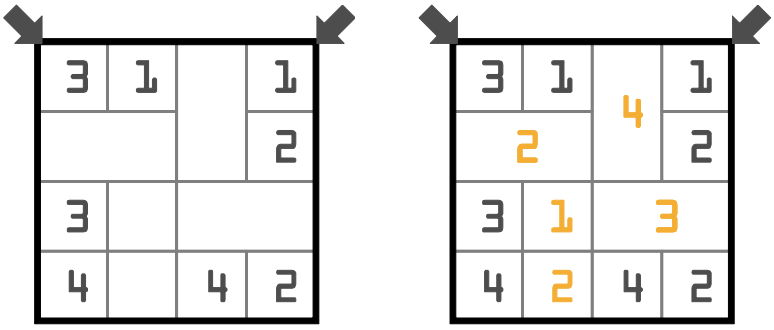


DIFFERENT NEIGHBOURS

Group C – P1

Fill the grid with numbers 1 to 4, so that cells with the same numbers don't touch each other, not even diagonally. Some cells are merged, but they contain only 1 digit.

Answer Key (1): Enter the digits in the diagonal from top-left to bottom-right. For the example, the answer is '3232'.
Answer Key (2): Enter the digits in the diagonal starting from top-right to bottom-left. For the example, the answer is '1414'.

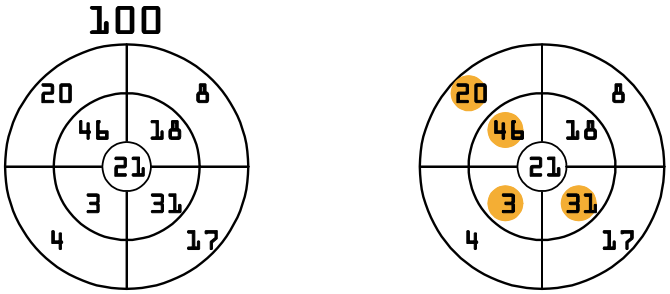


DART

Group C – P2

Place 4 (four) hits in the field so that the sum of the hit numbers is as given.

Answer Key: Enter the numbers used in ascending (smallest first) order. Use ',' to separate the numbers. For the example, the answer is '3,20,31,46'

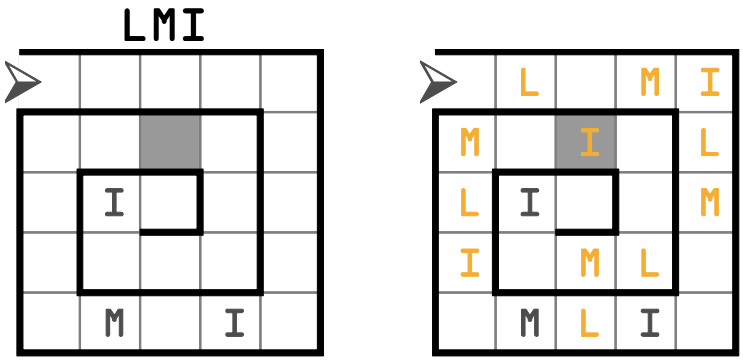


LETTER SNAIL

Group C – P3

Fill in the snail like grid such that each row and column has some re-arrangement of all the letters of the given key. Some cells will remain blank. While reading the letters from outside towards the center, the order of the letters is to be same as the key. [E.g. in the example it should read as L-M-I-L-M-I-L…]

Answer Key: Starting from the shaded cell, enter the letters as read towards to center. Replace blanks by 'X'. For the example, the answer is 'IXXLMXIX'

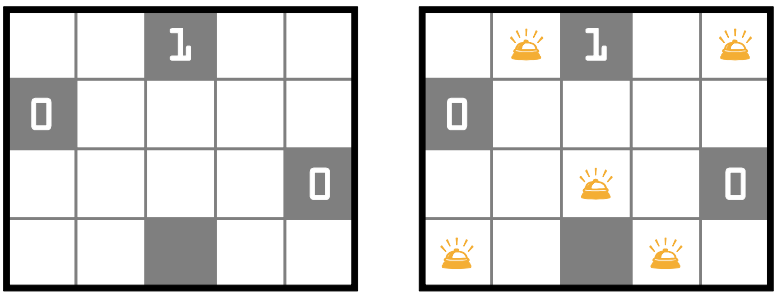


LIGHT UP

Group C – P4

Place light bulbs in some white cells in the grid so that every white cell in the grid is lit. A cell is illuminated by a light bulb if they are in the same row or column, and if there are no black cells between them. No light bulb may illuminate another light bulb. A number in a black cell indicates the number of light bulbs sharing an edge with that cell.

Answer Key: Starting from top row, enter the number of light bulbs in each row. For the example, the answer is '2012'

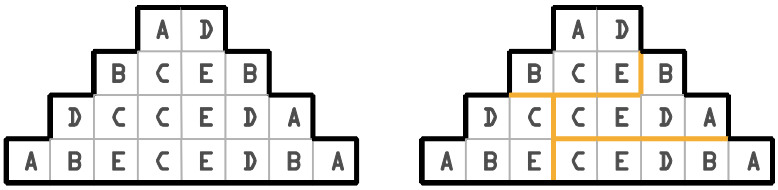


AREA DIVISION

Group C – P5

Divide the grid into several sub-grids such that each sub-grid has ABCDE.

Answer Key: Starting from the top row, enter the number of different sub-grids in each row. For the example, the answer is '1222'

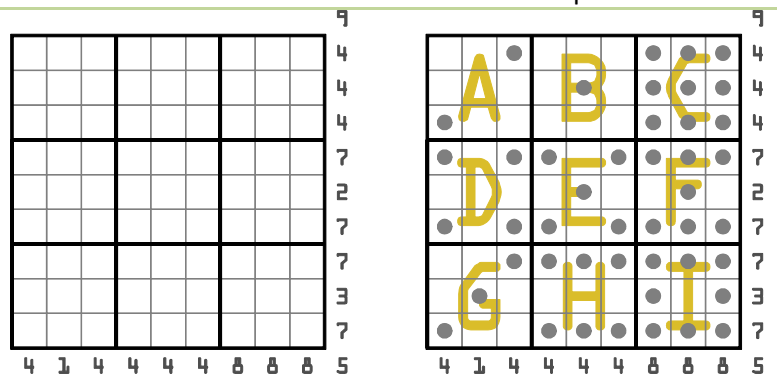


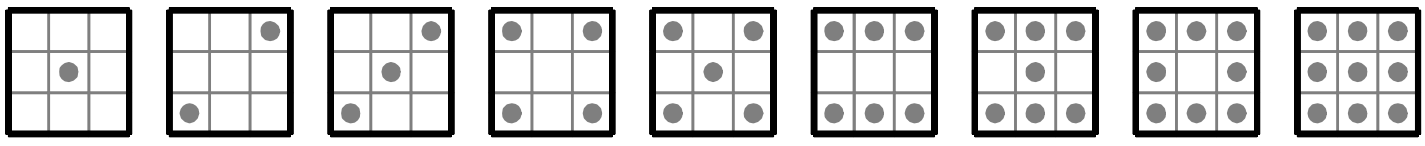
HALF DOMINOES

Group D – P1

Place all the nine half dominoes into the puzzle grid in a way that the numbers outside the grid represent the number of dots in the corresponding row / column / diagonal. The pieces may not be rotated or reflected.

Answer Key: Enter the half-domino numbers as per the alphabetic positions ABCDEFGHI. For the example, the answer is '219457368'



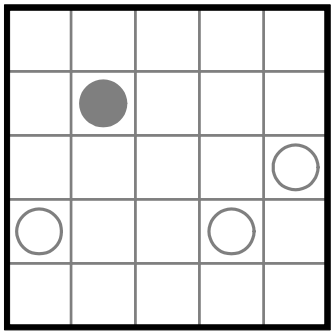


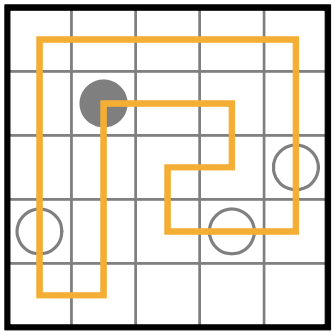
MASYU

Group D – P2

Draw a single closed loop using horizontal and vertical segments. It does not cross or overlap itself, and it may not visit all cells. The loop makes 90° turn at every cell with a black circle, but does not make a turn immediately before or after. The loop goes straight at every cell with a white circle, but makes a 90° turn immediately before or after or both.

Answer Key: Starting from the top row, enter the number of cells the loop does not visit in each row. For the example, the answer is '00003'



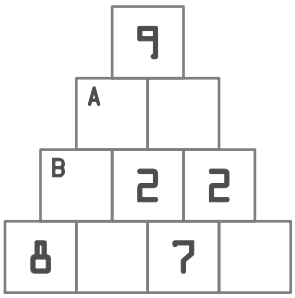


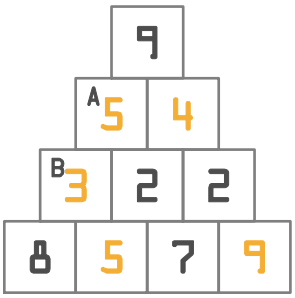
NUMBER PYRAMID

Group D – P3

Fill in the pyramid with digits from 1~9 so that digit in every cell is either the sum or difference of the digits in the two cells immediately below that. The bottom row contains distinct digits.

Answer Key (1): Enter the digits in the bottom row. For the example, the answer is '8579'
Answer Key (2): Enter the digits marked as A and B in the grid. For the example, the answer is '53'



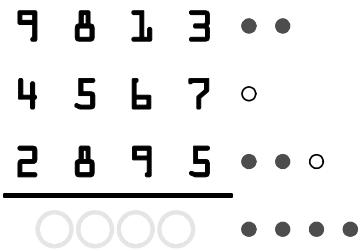


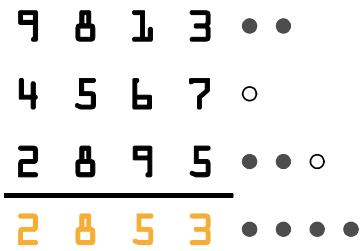
MASTERMIND

Group D – P4

Find out the correct series of numbers with the help of the information given by the black and white markers. Black markers indicate correct numbers in the right position, while the white ones mark correct numbers in the wrong place. Each number can occur only once in the solution.

Answer Key: Enter the number. For the example, the answer is '2853'



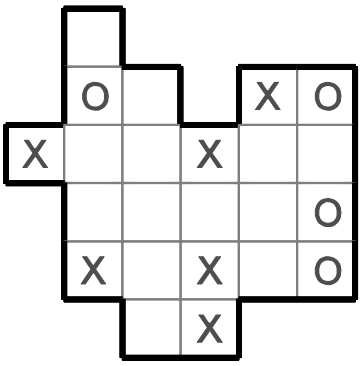


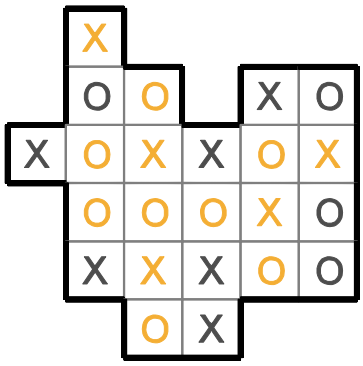
NO 4 IN A ROW

Group D – P5

Fill the grid with 'X' or 'O' such that 4 consecutive 'X' or 'O's do not appear horizontally, vertically or diagonally.

Answer Key: Starting from the top row, enter the number of 'X's in each row. For the example, the answer is '114131'.



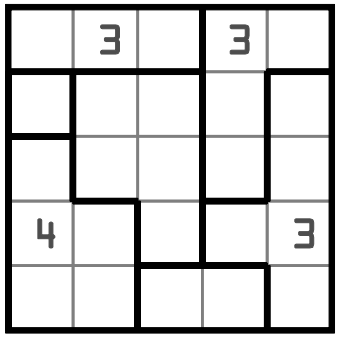


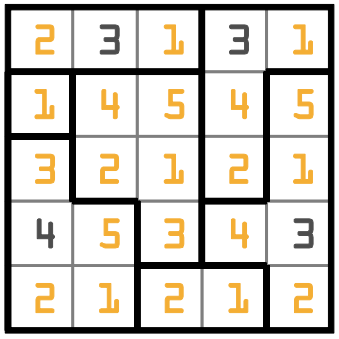
POLYMINOES

Group E – P1

The grid is divided into several sub-grids marked by thick lines. Fill in the grid such that every sub-grid of size *n* contains digits from *1~n* exactly once. Identical digits don't touch each other, even diagonally.

Answer Key: Starting from the top row, enter the number of '2' in each row. For the example, the answer is '10203'



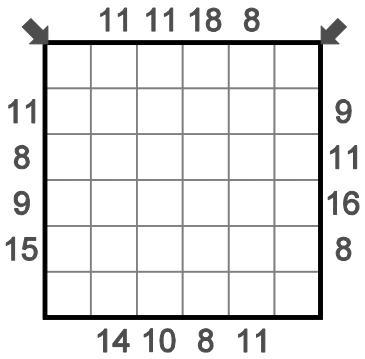


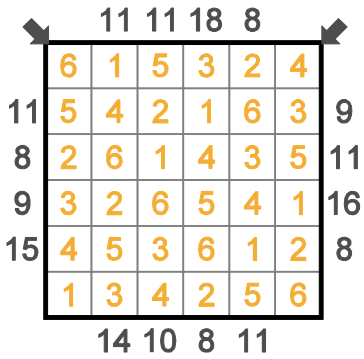
SUM SKYSCRAPER

Group E – P2

The grid represents a plot with skyscrapers of different heights. In each row and column, 1 ~ 6 occur exactly once each. Each digit inside the grid represents the height of the skyscraper in that cell. The digits outside the grid indicate the sum of skyscrapers seen from the corresponding direction.

Answer Key (1): Enter the digits in the diagonal from top-left. For the example, the answer is '641516'
Answer Key (2): Enter the digits in the diagonal from top-right. For the example, the answer is '464651'



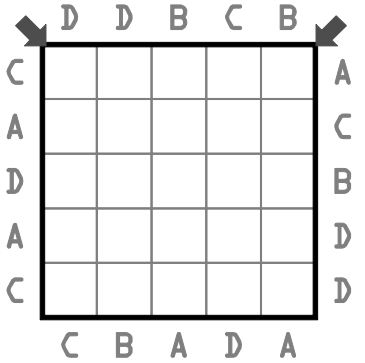


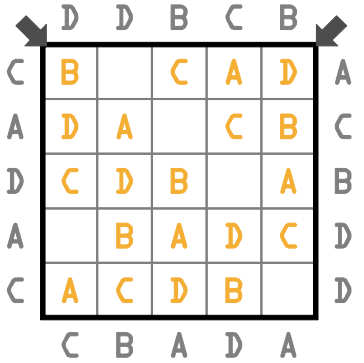
ABCD 2nd View

Group E – P3

Enter the letters A~D, each letter exactly once, in all rows and columns. In each row and column, Two cells (in the example 1 cell) will remain empty. The letters outside the grid show the letter that is seen 2nd from that direction.

Answer Key (1): Enter the letters in the top-left to bottom-right diagonal. Replace blanks by X. For the example, the answer is 'BABDX'
Answer Key (2): Enter the letters in the top-right to bottom-left diagonal. Replace blanks by X. For the example, the answer is 'DCBBA'



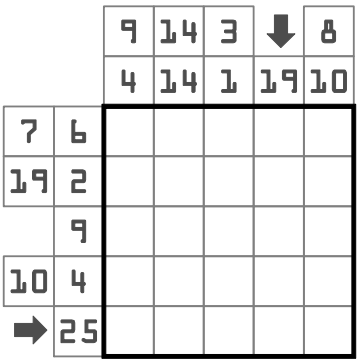


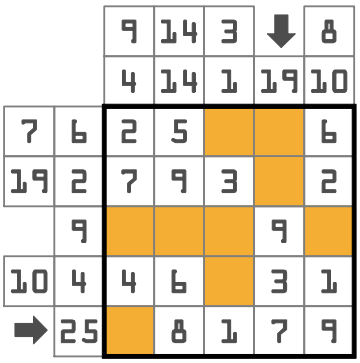
JAPANESE SUMS

Group E – P4

Fill the grid using 1~9 so that digits don't repeat in a row or column. Some cells will remain blank. Numbers outside the grid indicate the sums of the digit group in that row or column and in given order. Sum must be separated by at least one blank cell.

Answer Key (1): Enter the digits in the marked row, left-to-right. Replace blanks by 'X'. For the example, the answer is 'X8179'.
Answer Key (2): Enter the digits in the marked column top-to-bottom. Replace blanks by 'X'. For the example, the answer is 'XX937'.



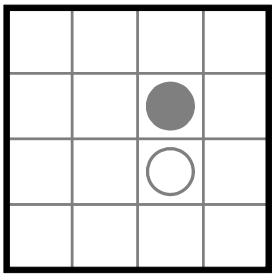


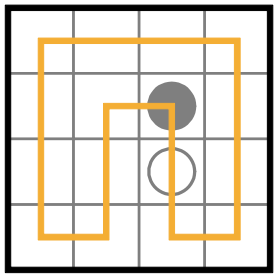
DUTCH LOOP

Group E – P5

Draw a single closed loop visiting all cells in the grid using horizontal and vertical segments. It does not cross or overlap itself. It makes 90° turn at black circle, goes straight at every white circle.

Answer Key: Starting from top row, enter the number of turns the loop takes in each row. For the example, the answer is '2204'





NOTES ABOUT PUZZLE SUBMISSION

- Answers will be accpected only using LMI submission system at http://logicmastersindia.com/M201009P.
- 24 hours prior to the test, a password protected pdf file will be available for download. This will contain the test puzzles.
- After you start the test, the password will be shown to you You can open the pdf using the password, solve on paper and enter the answer keys using the website.
- After you start the test, submission is allowed upto 80 minutes. A Timer will be available for you on the test page. Don't refresh/reload the test page before submitting.
- You may submit as many times as you want. Only your last submission will be considered for scoring.
- There is only one submit button for the whole test. When you click on this, all modified answer keys will be submitted.

NOTES ABOUT ANSWER KEYS

There is no provision to solve the puzzles online. After solving on paper players have to get the answer key for each puzzle and submit. Every puzzle has 1 or 2 answer keys. Copy the answer keys carefully. There is nothing worse than solving the puzzle correctly, but submitting a wrong answer key.
At LMI, we will show the results immidiately after you complete the test. Please help us by sticking to the formats while entering the answer key. Additional care has been taken to make sure that answer keys are unambiguous. In case of questions about any answer key, please ask in the forum for clarification, before starting the test.
LMI submission system is designed to show red warnings when you enter the answer in a format, that the system does not understand / expect. You should ensure that there are no warnings before you submit. Here are some examples of warnings :

a) System expects *'5'*. You enter *'FIVE'*
b) System expects *'1222'*. You enter *'1 2 2 2'* OR *'1,2,2,2'*
c) System expects digit *'0'*, and you enter letter *'O'*

Note that any capital letter or small letter can be used exchangebly.
However, even if you have warnings, your submission will be successfully recorded in the system. After you complete the test, if any puzzle is marked as 0 because you entered a slightly different format, you can claim for the points in the forum.

NOTES ABOUT TIE-BREAKING RULES AND BONUS FOR IMPERFECT SOLUTIONS

We are discussing multiple ideas on a) *tie-breaking rules* and b) *bonus for imperfect solutions* in our forum. More information on these two will be posted in the forum.

NOTES ABOUT PUZZLES

- Points are generally indicative of the difficulty of the Puzzles and time required to solve it. However, your personal experience and preference might differ.
- Examples don't reflect the difficulty of the actual puzzles in the test.
- All the puzzles are designed to have exactly one solution. In fact, in a number of puzzles, this assumption can be used to arrive at a solution.

ALL THE BEST. HOPE YOU WILL PARTICIPATE AND ENJOY THE TEST.