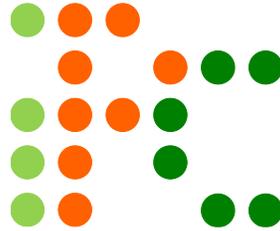


पुज़्ज़ी रामायण

and



Episode – 6
19th – 24th June 2020

MII and Regions
by
Anubhav Balodhi and Ashish Kumar

Puzzle Ramayan rounds will also serve as qualifiers for Indian Puzzle Championship for year 2020. Please check <http://logicmastersindia.com/PR/2020pr.asp> for details.

Important Links

Submission Page : <http://logicmastersindia.com/PR/202006/>

Discussion Thread : <http://logicmastersindia.com/t/?tid=2748>

F. A. Q. : <http://logicmastersindia.com/t/?tid=381>

Registration, if required : <http://logicmastersindia.com/register.asp>

About this Episode

This episode has 22 Puzzles from the following puzzle types:

- 3* Turnkey
- 3* Rangoli
- 3* Rassi Silai
- 2* 3D Rassi Silai
- 3* Sashigane
- 3* Five Cells
- 3* Pentominous
- 2* Pentominous Borders

How to participate?

- Understand the rules of different puzzles that will appear in this episode. This Instruction Booklet has rules for each puzzle.
- Download the password protected Puzzle booklet (will be uploaded before the test starts). The Puzzle booklet contains the actual Puzzles to be solved. It is password protected, so you won't be able to open it.
- Any time on or after 19th June (but on or before 24th June), login at the submission page using your LMI userid and password. Please check the submission page for exact timing.
- Click on "Start". At this time, password for pdf will be shown and timer will start.
- The puzzle booklet should be downloaded, printed and solved on paper.
- There will not be any interface / applet to solve the puzzles on web browser.
- Most of the puzzles are designed to be solved faster on paper.
- We advise you to have a printer accessible with enough paper.
- Outside solving help of any kind is not permitted. This includes but is not limited to: assistance of any kind from any other person; prepared notes, books, calculators, computers, or tools other than items explicitly permitted.
- You are allowed to use writing implements, eraser, blank paper (including commercial graph paper), ruler, scissors, and tape.

If you are participating at LMI for first time, you must check the F.A.Q. at <http://logicmastersindia.com/t/?tid=381>.

About answer keys and Submission

- Each puzzle has some answer keys, as described in the instructions.
- After solving the puzzle, you need to submit the puzzle using the answer keys.
- You may submit the answer keys anytime during the test duration. You may consider submitting a puzzle as soon as you solve it.
- Answer keys are always to be entered from left to right or top to bottom
- Don't enter any separator unless specified in the answer key
- If one row and one column is marked, enter the row first and then the column
- If multiple rows are marked, enter from top to bottom for marked rows
- If multiple columns are marked, enter from left to right for marked columns
- If horizontal and vertical keys are needed, first enter the horizontal and then the vertical
- Uppercase or lower case of answer key does not matter
- Characters other than alphabets, numbers and comma will be removed while checking the answer

Points Table and Scoring

Points typically indicate difficulty of the Puzzles and time required to solve them. You will get full points if you enter the correct answer key. While the organizers have made best efforts to match them, your personal experience and preference may differ.

Turnkey	1, 2, 4
Rangoli	1, 4, 5
Rassi Silai	2, 7, 5
3D Rassi Silai	3, 4
Sashigane	4, 3, 5
Five Cells	1, 4, 13
Pentominous	1, 10, 6
Pentominous Borders	2, 13

This test uses instant grading where a solver can submit any individual Puzzle and receive confirmation that the solution is correct or not. Each incorrect submission reduces the puzzle's potential score. The first, second, third, and fourth incorrect submissions reduce the potential score to 90%, 70%, 40%, and 0% respectively.

Bonus and Ranking

If you submitted all Puzzles correctly, you can have bonus points 1 point per minute saved, computed up to seconds.

Ranking will be based on following rules in order:

1. Most total points
2. Earliest final submission time, up to seconds (ignoring incorrect submissions)

About the Puzzle Booklet

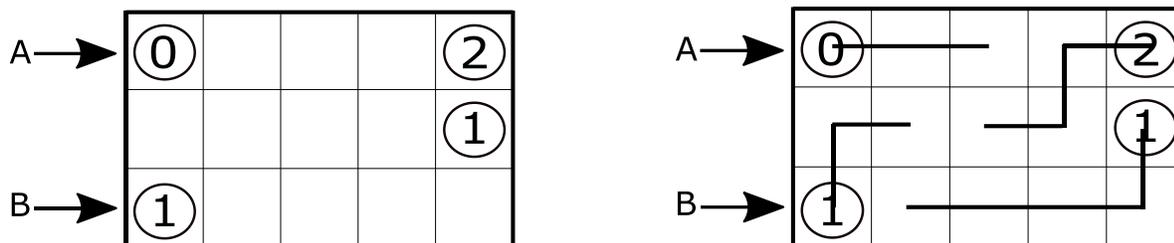
The password protected Puzzle booklet will have about 10 pages. We expect you to print and solve on paper, so you would need to have a printer accessible with enough paper.

1-3 Turnkey

1 + 2 + 4 points

Draw a path starting from each circled cell. The numbers inside the circles indicate the number of turns for the path starting from that circle. Each path must be at least three cells long (including the circled cell). Each circled cell must have exactly one path and no two paths can overlap or intersect. Each cell must be used in exactly one path.

The example uses a grid of size 3x5. The test will have grid sizes 5x5, 6x6 and 6x6.



Answer Key: For each row (column), enter the number of cells belonging to different paths from left to right (top to bottom).

Example: 32, 14

4-6 Rangoli

1 + 4 + 5 points

Every cell must contain one of the four letters R, A, N and G. In each 2x2 box marked by bold lines, the four letters must appear once and read RANG in either the clockwise or anticlockwise direction. All shaded boxes will follow one direction and all unshaded boxes will follow the other direction. Cells with same letter don't share an edge but can share a corner. Each letter appears an equal number of times in each row and each column.

The example uses a grid of size 4x4. The test will have grid sizes 4x4, 8x8 and 8x8.



Answer Key: Enter the contents of the marked rows (columns) from left to right (top to bottom).

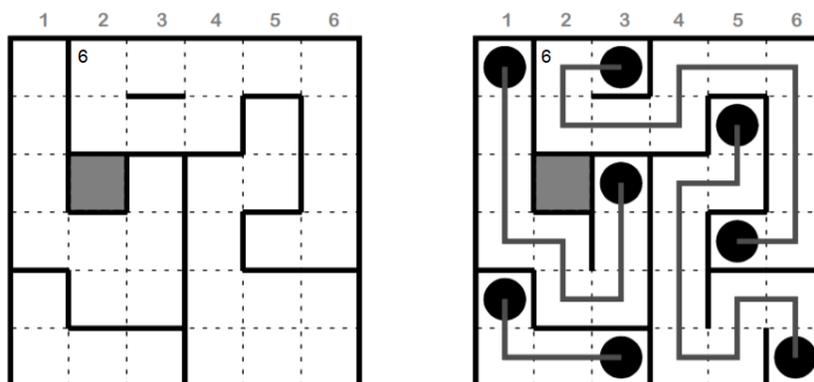
Example: ANRG, GRNA

7-9 Rassi Silai

2 + 7 + 5 points

Thread a rope in each region. A rope is a path that passes through all cells of the region, between two cells that are end-points. End-points do not touch each other, even diagonally, even across regions. Some bars are given within some regions; there cannot be a path between the two cells on both sides of the bar. Numbers inside regions indicate the number of turns in that region.

The grey numbers at the top denote the column number and are used for the answer key only. The example uses a grid of size 6x6. The test will have grid sizes 8x8, 8x8 and 9x9.



Answer Key: For each row, enter the column number of the leftmost end-point. Enter 0 if there are no end-points in a row.

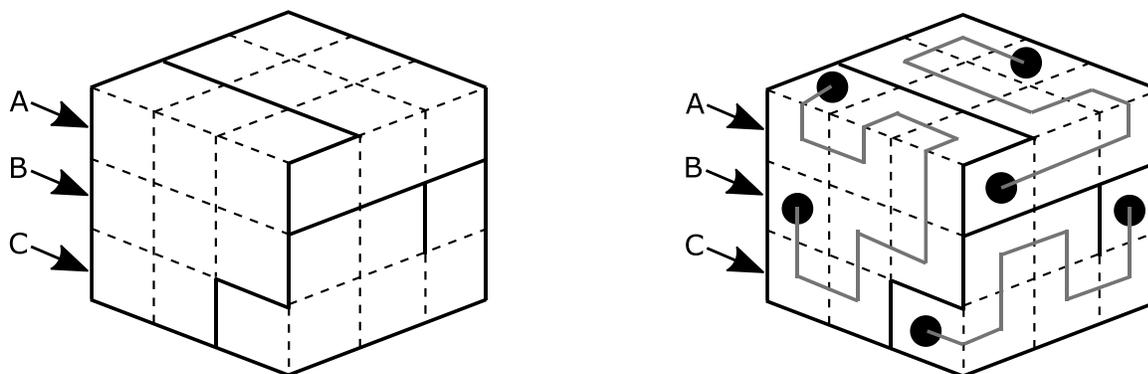
Example: 153513

10-11 3D Rassi Silai

3 + 4 points

Thread a rope in each region. Regions can be two-dimensional or 3-dimensional. A rope is a path that passes through all cells of the region, between two cells that are end-points. End-points do not touch each other, even diagonally, even across regions. Some bars are given within some regions; there cannot be a path between the two cells on both sides of the bar. Numbers inside regions indicate the number of turns in that region.

The example uses a grid of size 3x3x3. The test will have grid sizes 4x4x4 and 4x4x4.



Answer Key: For each marked row, enter the number of continuous cells belonging to different path segments. (For a $N \times N \times N$ cube, each row will be of length $2N$)

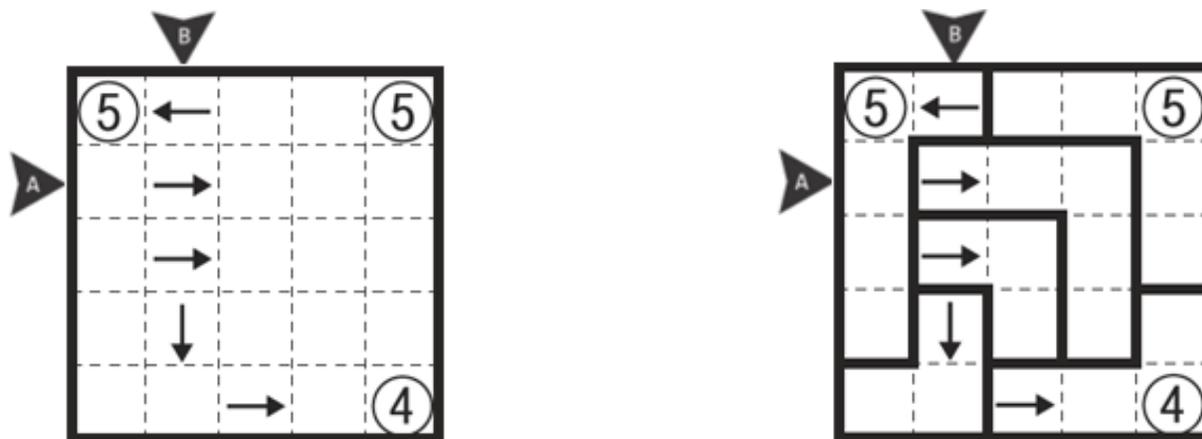
Example: 213,1221,222

12-14 Sashigane

4 + 3 + 5 points

Divide the grid into L shaped blocks - one block wide. All blocks must be L shaped. Cells with open circles form the knee (bend) in a block. The number in an open circle shows the number of cells in its block. Open circles without numbers may have any number of cells. Cells with arrows form one end of its block, the arrow points towards the knee of this block. The number of marks in a block (arrows or open circles) may be 0, 1, 2, or 3.

The example uses a grid of size 5x5. The test will have grid sizes 8x8, 8x8 and 10x10.



(Example Credits: nikoli.com)

Answer: For the marked rows/columns, enter the number of consecutive cells in each block from left to right/top to bottom Enter only the unit's digit for double digit numbers.

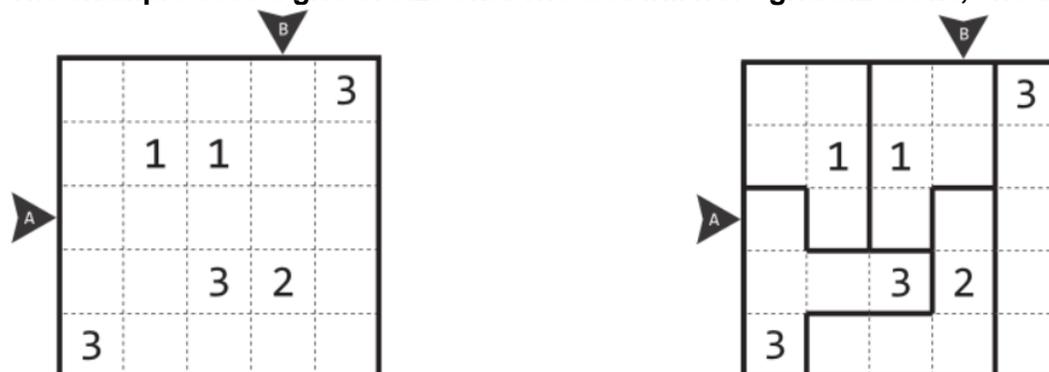
Answer: 131, 1112

15-17 Five Cells

1+ 4 + 13 points

Divide the grid into regions, each of size 5 cells, using horizontal and vertical lines along cell edges. A number in a cell tells how many of that cell's edges are region boundaries. The edge of the grid is considered as a region boundary. A region may contain zero or more clues.

The example uses a grid of size 5x5. The test will have grid sizes 5x5, 5x8 and 8x10.



Answer: For the marked rows/columns, enter the number of consecutive cells in each region from left to right/top to bottom Enter only the unit's digit for double digit numbers.

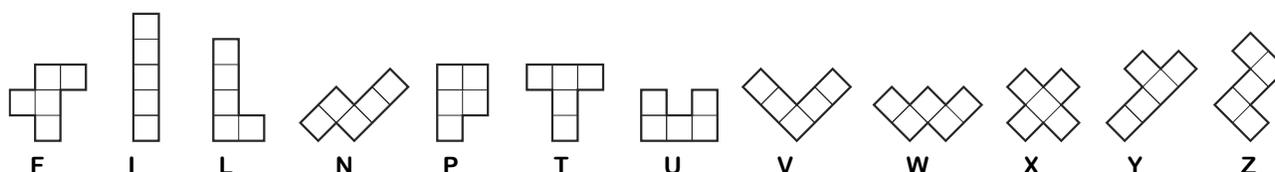
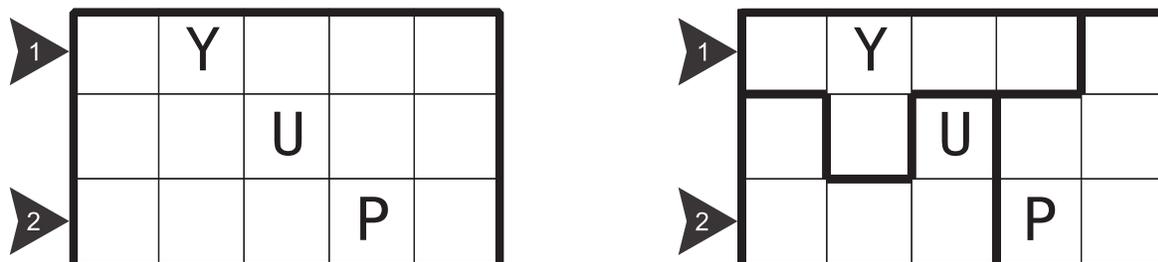
Answer: 11111, 23

18-20 Pentominous

1 + 10 + 6 points

Divide the grid into pentominoes so that no two pentominoes of the same shape (including rotations/reflections) share an edge. A cell with a letter in it must be part of the pentomino shape associated with that letter. An inventory of pentominoes is given below the puzzle but all shapes may or may not be used. Shaded cells will not be part of any pentominoes. All other cells must be part of a pentomino.

The example uses a grid of size 3x5. The test will have grid sizes 5x5, 9x9 and 10x10.



Answer Key: For each marked row or column, enter the letter of the pentomino to which each cell belongs (from left to right or top to bottom).

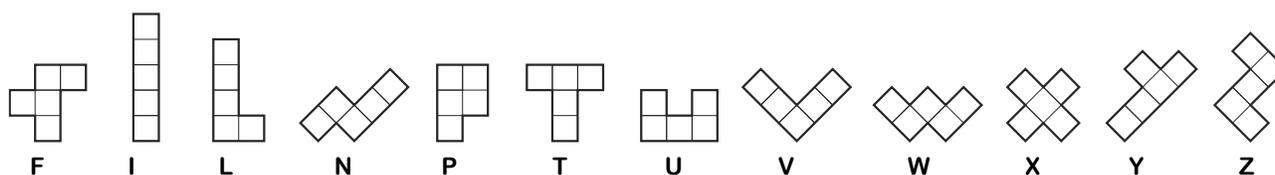
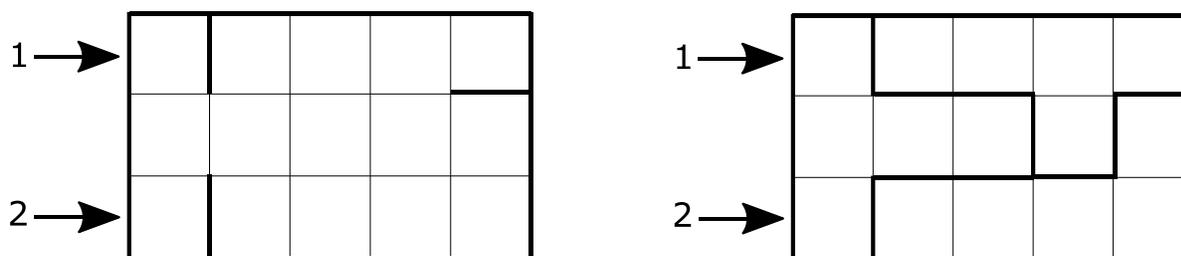
Example: YYYYP, UUUPP

21-22 Pentominous Borders

2 + 13 points

Divide the grid into pentominoes so that no two pentominoes of the same shape (including rotations/reflections) share an edge. An inventory of pentominoes is given below the puzzle but all shapes may or may not be used. Shaded cells will not be part of any pentominoes. All other cells must be part of a pentomino. Some borders between pentominoes are already drawn.

The example uses a grid of size 3x5. The test will have grid sizes 5x5 and 10x10.



Answer Key: For each marked row or column, enter the letter of the pentomino to which each cell belongs (from left to right or top to bottom).

Example: TYYYY, TLLLL