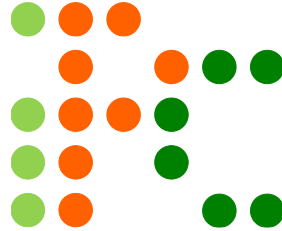# puzzle Ramayan

and

Episode – 2
25th – 30th January 2019

Connected Puzzles
by
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Puzzle Ramayan rounds will also serve as qualifiers for Indian Puzzle Championship for year 2019. Please check http://logicmastersindia.com/PR/2019pr.asp **for details.**

About this Episode

This episode has 22 Puzzles from the following puzzle types:

- 2* Twopa
- 1* Fillomino - Norinori Relay
- 1* Fillomino - Star Battle Relay
- 2* Linked Maxi Loop
- 1* Linked Minesweeper Nanro
- 1* Shaded Cave - Kurotto Mastermind
- 1* Linked Skyscraper - Easy as 123

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 25th January (but on or before 30th January), 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.

Twopa	4+5, 5+6
Fillomino - Norinori Relay	5+5
Fillomino - Star Battle Relay	2+2
Linked Maxi Loop	5+4, 8+9
Linked Minesweeper - Nanro	4+2+4+5
Shaded Cave - Kurotto Mastermind	3+5
Linked Skyscrapers - Easy as 123	6+3+6+2

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.

Puzzles are connected but there will be separate answer keys for 22 grids. (Partial) points will be awarded based on the answer keys for each grid.

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 9 pages. We expect you to print and solve on paper, so you would need to have a printer accessible with enough paper.

1-2, 3-4 Twopa

4 + 5, 5 + 6 points

General rules
There are two Tapa grids. Each Tapa grid has multiple solutions, but if two iterations of it are solved together, each of them has a unique solution. In each solution, every clue must behave at least a little bit differently. This means, in a multi-digit clue, some of the digits can have the same behavior, but not all.

One shaded cell will be given in one of the grids. This means the cell will be shaded in one solution and not in the other. The shaded cell is an added given which may also be used as a clue to solve the puzzle.

Puzzle Rules
Tapa: Shade some cells to form a continuous wall. Number/s in a cell indicate the length of shaded cell blocks on its neighbouring eight cells. If there is more than one number in a cell, there must be at least one white cell between the shaded cell blocks. Shaded cells cannot form a 2x2 area. There are no wall segments on cells containing numbers.

Example

Tapa 1   Tapa 2
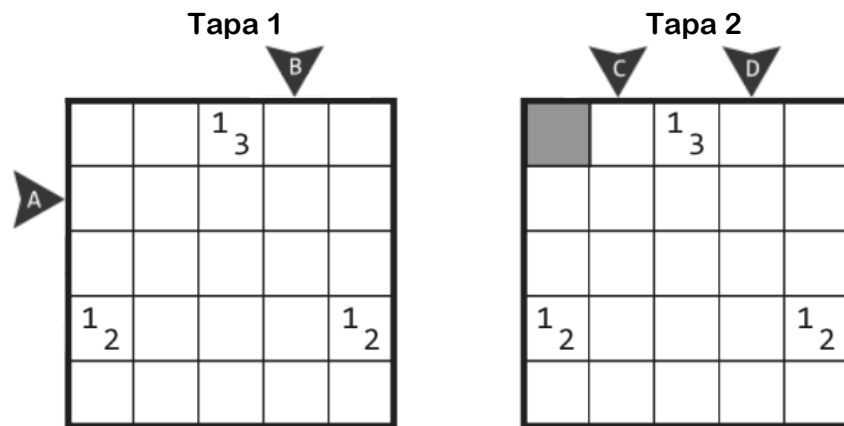
Solution
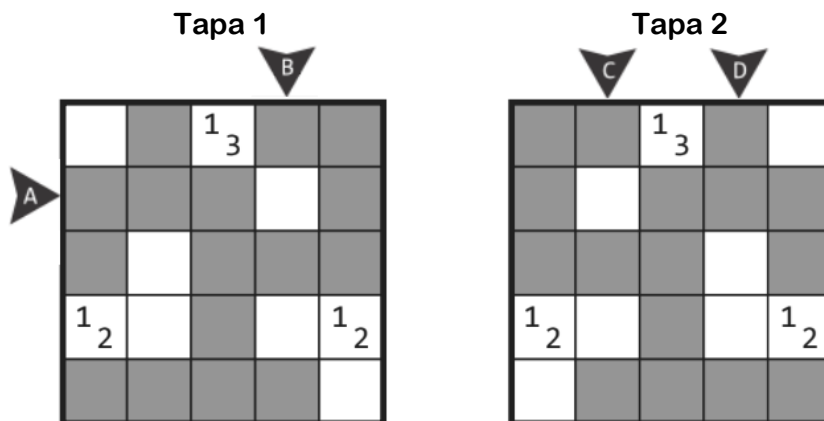
Tapa 1   Tapa 2

Answer key
Tapa: Enter the lengths of continuous shaded and unshaded segments in the marked rows/columns.

Example
Tapa 1 – 311, 11111
Tapa 2 – 11111, 221

5-6 Fillomino – Norinori Relay
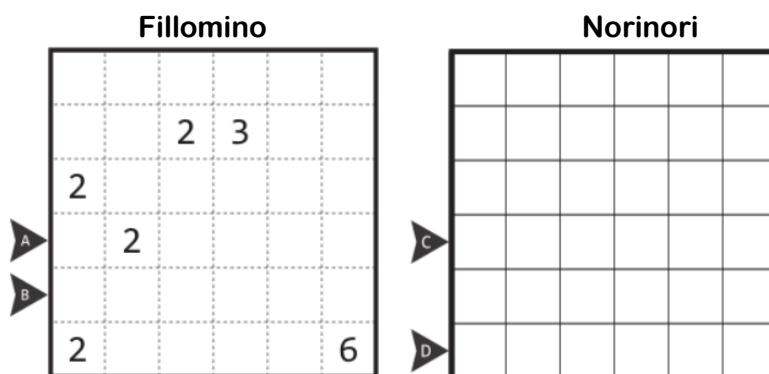
5 + 5 points

General Rules

The puzzles may not have a single solution by themselves, but only one solution for the Fillomino makes the other puzzle valid. Regions formed in Fillomino grid become valid Norinori regions.
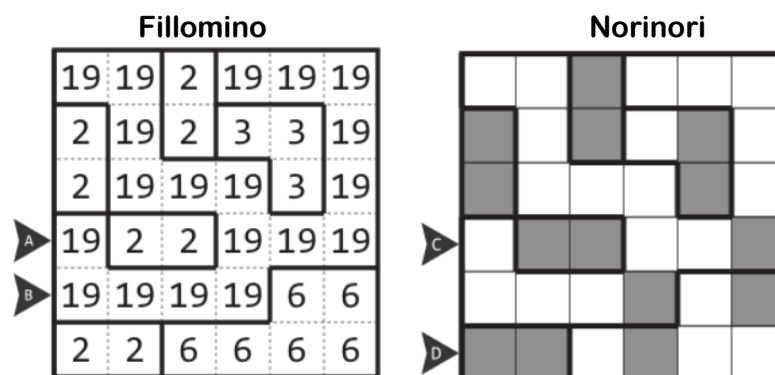
Puzzle Rules

Fillomino - Divide the grid along the dotted lines into polyominoes so that no two polyominoes with the same area share an edge. Each given number must represent the area of the polyomino it belongs to. A polyomino may contain zero, one, or more of the given numbers.

Norinori - Shade two cells in each thickly outlined region, so that each shaded cell shares an edge with exactly one other shaded cell.

Example

Solution

Answer Key

Fillomino - Enter the contents (numbers) of the marked rows/columns. Enter only the unit's digit for two digit numbers.

Norinori - Enter the lengths of continuous shaded and unshaded segments in the marked rows/columns.

Example
Fillomino – 922999, 999966
Norinori – 1221, 2112

7-8 Fillomino – Star Battle Relay

2 + 2 points

General Rules

The puzzles may not have a single solution by themselves, but only one solution for the Fillomino makes the other puzzle valid. Regions formed in Fillomino grid become valid Star Battle regions.

Puzzle Rules

Fillomino - Divide the grid along the dotted lines into polyominoes so that no two polyominoes with the same area share an edge. Each given number must represent the area of the polyomino it belongs to. A polyomino may contain zero, one, or more of the given numbers.

Star Battle - Fill some cells with stars so that each row, column, and bold region contains the indicated number of stars. Stars cannot be placed in any neighboring cells, including diagonally adjacent cells.

Example

Fillomino

Star Battle
A B C D E F

(1 Star)

Solution

Fillomino

Star Battle
A B C D E F

(1 star)

Answer Key

Fillomino - Enter the contents (numbers) of the marked rows/columns. Enter only the unit's digit for two digit numbers.

Star Battle – For each row, from top to bottom, enter the number of the first column from the left where a star appears.

Example:
Fillomino – 111414, 311111
Star Battle - FBECAD

9-10, 11-12 Linked Maxi Loop

5 + 4, 8 + 9 points

General rules

There are two Maxi Loop grids. Some cells are shaded in both grids. If the loop goes straight in a shaded cell in one grid, it must turn in the corresponding shaded cell in the other grid. If the loop turns in a shaded cell in one grid, it must go straight in the corresponding shaded cell in the other grid.

Puzzle Rules

Draw a single closed loop passing through every cell in the grid horizontally and vertically. The loop can't cross or touch itself. The numbers in the boldly marked regions indicate the highest amount of cells that the loop goes through consecutively (i.e. without exiting to another region) in that area.

Example

Maxi Loop 1   Maxi Loop 2

Solution

Maxi Loop 1   Maxi Loop 2

Answer Key

Maxi Loop: Enter the lengths of loop segments in marked rows/columns. Enter '0' if there are no line segments along the marked direction.

Example

Maxi Loop 1 – 2, 2
Maxi Loop 2 – 3, 11

13-16 Linked Minesweeper - Nanro

4 + 2 + 4 + 5 points

General rules
There are four grids. The top left and bottom right are Minesweeper grids. The top right and bottom left are Nanro grids. In the Nanro, the cells occupied by numbers are considered 'shaded'. In the Minesweeper, the mines are considered 'shaded'. For every pair of adjacent rows/columns across two grids (e.g. Row 4 of top left grid and Row 4 of top right grid), the number of shaded cells must be the same (as determined by the solver).

Puzzle Rules

Minesweeper: Place mines in some empty cells so that each number represents the total count of mines in all neighboring cells, including diagonally adjacent cells. Each cell can contain at most one mine. Cells with numbers cannot contain mines.

Nanro: Label some cells with numbers to form a single connected group of labeled cells; no 2×2 group of cells may be fully labeled. Each bold region must contain at least one labeled cell. Each number (including any given numbers) must equal the total count of labeled cells in that region. When two numbers are orthogonally adjacent across a region boundary, the numbers must be different.

Example   **Solution**

Answer Key

Minesweeper: Enter the contents of the marked rows/columns. Use 'M' for mines and 'X' for non-mine cells.

Nanro: Enter the contents of the marked rows/columns. Use 'X' for empty cells.

Example
Minesweeper 1 – XMXM, MMXX
Nanro 1 – XX51, 3335
Nanro 2 – 2XXX, X2X2
Minesweeper 2 – MXMM, MMMM

17-18 Shaded Cave – Kurotto Mastermind

3 + 5 points

General Rules

The puzzles may not have a single solution by themselves, but are connected by the mastermind clues. The mastermind clue for a row indicates the number of shaded cells in exactly the same position in both the grids, for that row.

Puzzle Rules

Shaded Cave: Shade some cells to form a single connected group — the shaded cave. All unshaded cells must be connected horizontally or vertically through other unshaded cells to an edge of the grid. All numbered cells must be a part of the cave, with each number indicating the total number of shaded cells connected vertically and horizontally to the numbered cell, including the cell itself.

Kurotto: Shade some empty cells so that each circled number indicates the total number of shaded cells in connected groups sharing an edge with that number. Cells with circles cannot be shaded.

Example
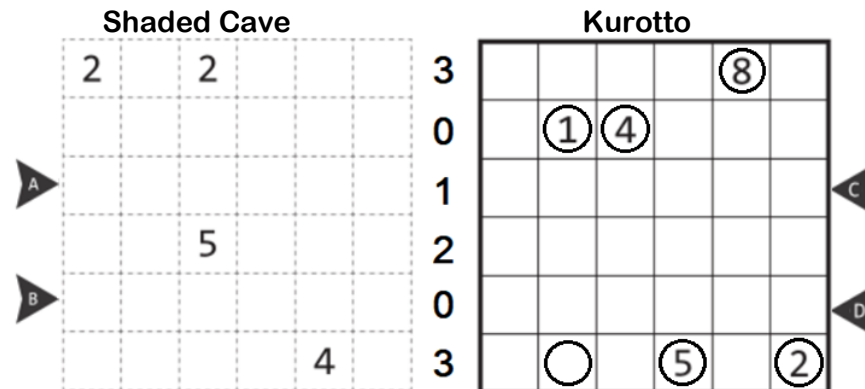
Solution
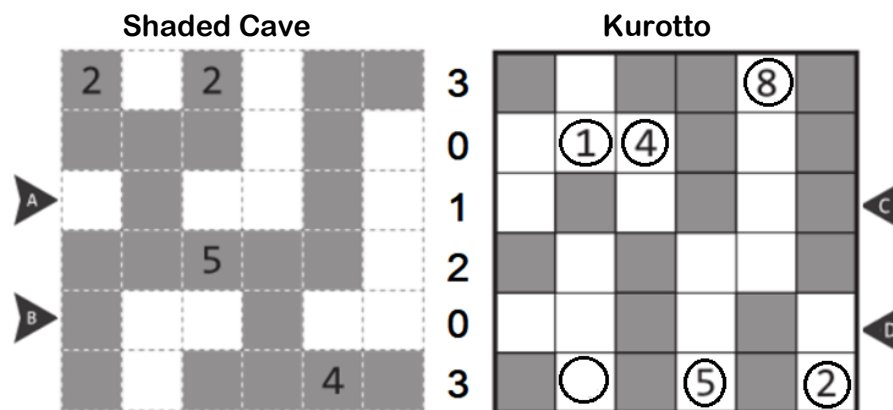
Answer Key

Shaded Cave: Enter the lengths of continuous shaded and unshaded cells (from left to right, or top to bottom) for the marked rows/ columns.

Kurotto: Enter the lengths of continuous shaded and unshaded cells (from left to right, or top to bottom) for the marked rows/ columns.

Example

Shaded Cave – 11211, 1212
Kurotto – 111111, 21111

19-22 Linked Skyscrapers – Easy as 123   6 + 3 + 6 + 2 points

General Rules
The puzzles may not have a single solution by themselves, but are linked by the shared clues. The shared clues between two grids hold true for both grids. Finding the shared clues is a possible part of solving.

Puzzle Rules
Skyscraper: Fill in the grid with digits 1 – N so that each row and column contains each digit exactly once. Some cells may remain empty. Each number inside the grid represents the height of a building. The clues outside of the grid indicate how many buildings can be seen when looking from that direction. Taller buildings block the view of smaller buildings.

Easy As 123: Fill in the grid with numbers from 1-N so that each row and column contains each letter exactly once. Some cells may remain empty. The clues outside the grid indicate the first number seen in that row or column, from the corresponding direction.

Example (N=3)   Solution

Skyscraper 1   Easy as 123 – 1   Skyscraper 1   Easy as 123 – 1

Easy as 123 – 2   Skyscraper 2   Easy as 123 – 2   Skyscraper 2

Answer key
Skyscraper: Enter the contents of the marked row (from left to right, or top to bottom). Use X for empty cells.
Easy As 123: Enter the contents of the marked row (from left to right, or top to bottom). Use X for empty cells.

Example
Skyscraper 1 – 1X23, 213X
Easy As 123 - 1 - 12X3, 3X21
Easy As 123 - 2 – X123, 3X12
Skyscraper 2 – 231X, X231