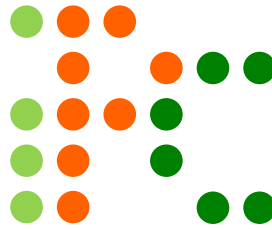


puzzle Ramayan

and



Episode – 5
30th April – 5th May 2021

Object Placement
by
Priyam Bhushan
&
Prasanna Seshadri

Puzzle Ramayan rounds will also serve as qualifiers for Indian Puzzle Championship for year 2021. Please check <http://logicmastersindia.com/PR/2021pr.asp> for details.

Important Links

Submission Page : <http://logicmastersindia.com/live?contest=PR202105>

Discussion Thread : <http://logicmastersindia.com/t/?tid=2829>

F. A. Q. : <http://logicmastersindia.com/t/?tid=2773>

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

About this Episode

This episode has 22 Puzzles from the following puzzle types:

- 3* Star Battle
- 3* Akari
- 3* Minesweeper
- 3* Myopia (Shapes)
- 3* Statue Park
- 3* Dosun-Fuwari
- 2* Stargazing
- 2* Dosun-Fuwari Park

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 30th April (but on or before 5th May), login at the submission page using your LMI user-id 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 contest duration is 90 minutes.**
- The puzzle booklet can be downloaded, printed and solved on paper.
- There will not be any interface / applet to solve the puzzles on web browser, but external Penpa links will be provided. The participant is still expected to come back and enter the answer key if solving using the links.
- 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=2773>.

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 the ones explicitly expected by the answer key will cause the red highlight to appear around the submission box.
-

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.

Star Battle	8, 7, 2
Akari	4, 2, 1
Minesweeper	2, 4, 5
Myopia (Shapes)	2, 10, 10
Statue Park	3, 5, 12
Dosun-Fuwari	1, 1, 3
Stargazing	5, 7
Dosun-Fuwari Park	3, 3

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. A demonstration for this is shown below.

Original points

04 Araf	50 points	4A	Sum should be 10
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Potential points after 1 incorrect submission

04 Araf	45 / 50	4A	1234
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Potential points after 2 incorrect submissions

04 Araf	35 / 50	4A	23311
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Potential points after 3 incorrect submissions

04 Araf	20 / 50	4A	1111111111
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Potential points after 4 incorrect submissions

04 Araf	0 / 50	4A	541
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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)

Penpa Usage

This contest will also be solvable on the Penpa-Edit software. Below the rules of each puzzle will be a link to click to solve on the editor. The editor DOES NOT have a solution enabled so it will not check a solution. Participants must submit the answer key codes as they would with paper solving. It is therefore advisable to enter solution codes one at a time. To practice on the editor, we have given links for solving the example puzzles too.

Credits

- **Yosh (rand_yosh314)** & **Murat Can Tonta** for test solving the puzzles and providing invaluable feedback.
- The original creator **opt-pan** for penpa edit - <https://opt-pan.github.io/penpa-edit/>
- **Swaroop Guggilam** for his recent efforts in adding features to Penpa-edit - <https://swaroopg92.github.io/penpa-edit/>

About the Puzzle Booklet

The password protected Puzzle booklet will have 11-12 pages. We expect you to print and solve on paper, so you would need to have a printer accessible with enough paper.

Solutions and keys (including the key explanation) to examples are towards the end of the booklet in the Solutions section.

1-3 Star Battle

8 + 7 + 2 points

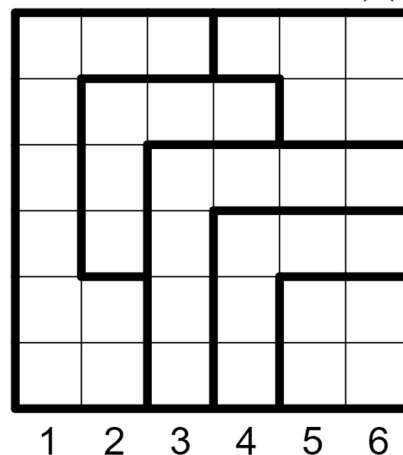
1★

Fill some cells with stars so that there are two stars (one in the example) in each row, column, and bold outlined region. Stars cannot touch one another, even diagonally.

The numbers given below are just for answer key purposes.

[The puzzles in the contest will be of sizes 10x10, 10x10 and 10x10. This example is 6x6.]

Penpa for example: <https://git.io/JOjYg>



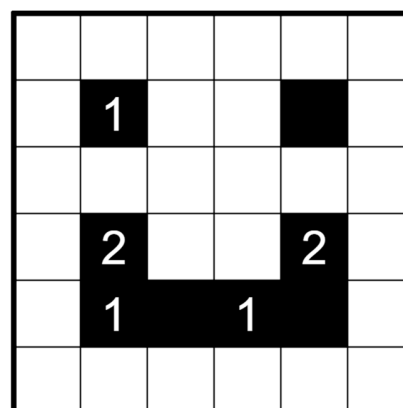
4-6 Akari

4 + 2 + 1 points

Place lightbulbs in some of the white cells so that all white cells are illuminated. A lightbulb illuminates all cells it can see horizontally and vertically, in each of the four directions, including the cell in which it is placed. Lightbulbs are blocked by black cells or the edge of the grid. No two lightbulbs may illuminate each other. Numbers in black cells indicate how many of the four orthogonally adjacent cells contain a lightbulb.

[The puzzles in the contest will be of sizes 10x10, 10x10 and 8x8. This example is 6x6.]

Penpa for example: <https://git.io/JOjO1>



7-9 Minesweeper

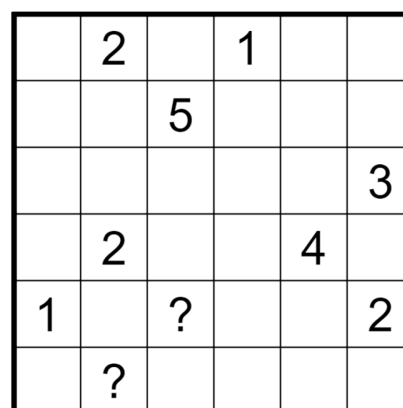
2 + 4 + 5 points

Place a mine into some of the empty cells so that each number represents the total count of mines in the 8 neighbouring cells, including diagonally adjacent cells. The total number of mines to be placed in the grid will be provided under the bottom left corner of the grid.

A '?' can stand for any whole number at any instance.

[The puzzles in the contest will be of sizes 7x7, 9x9 and 10x10. This example is 6x6.]

Penpa for example: <https://git.io/JOjcx>



🧨 = 10

10-12 Myopia (Shapes)

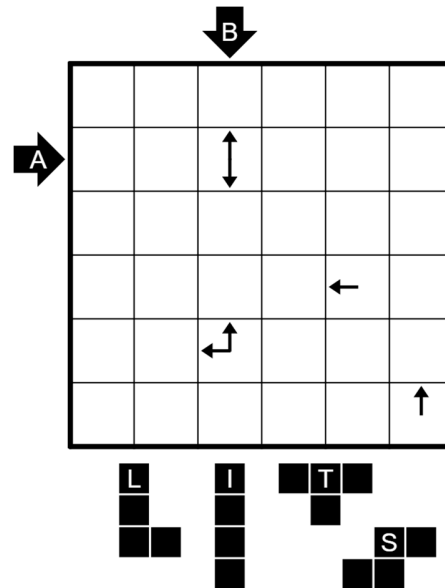
2 + 10 + 10 points

(Note – This puzzle type is better known as Pentopia, the name has been changed to indicate the possibility of varied shape banks).

Place some of the given shapes in the grid so that no shapes are in adjacent cells that share an edge or corner. Shapes cannot repeat in the grid; rotations and reflections of a shape is considered the same shape. The arrow clues indicate all the directions (up, down, left, and right) where the nearest shapes are located when looking from that square.

[The puzzles in the contest will be of sizes 7x7, 10x10 and 12x12. This example is 6x6.]

Penpa for example: <https://git.io/JOjgF>



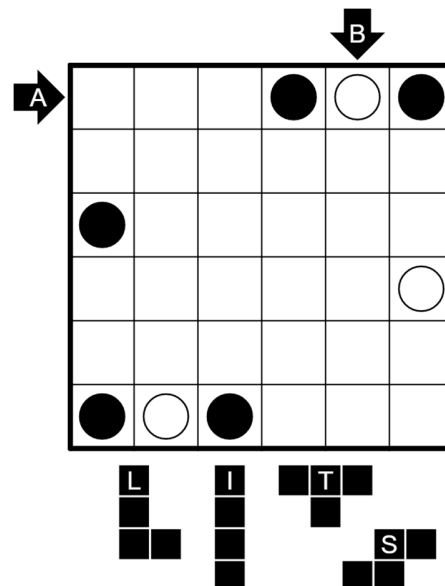
13-15 Statue Park

3 + 5 + 12 points

Place each of the given shapes exactly once into the grid, with rotations and reflections allowed. No two shapes can overlap or be orthogonally adjacent, and all of the space not occupied by shapes must be connected. Black circles in the grid represent spaces that must be contained in one of the shapes, and white circles represent spaces that cannot be contained in a shape.

[The puzzles in the contest will be of sizes 7x7, 10x10 and 12x12. This example is 6x6.]

Penpa for example: <https://git.io/JOjwa>



For added clarity, we have prepared this table to help easily distinguish between the nuances of Puzzles 10-12 vs Puzzles 13-15.

Property	Myopia (Shapes)	Statue Park
Must use all shapes	NEED NOT HAPPEN	YES
Connected 'unoccupied cells'	NEED NOT HAPPEN	YES
Diagonal Touching	NO	CAN HAPPEN

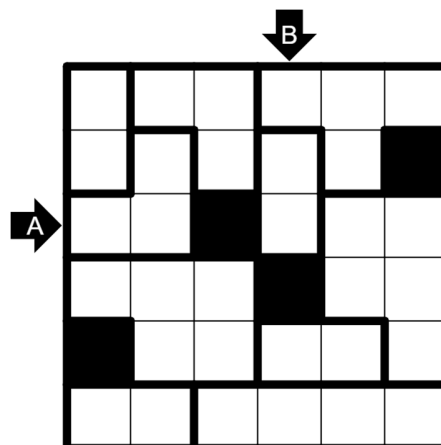
16-18 Dosun-Fuwari

1 + 1 + 3 points

Place balloons (white circles) and iron balls (black circles) into the grid so that each room (bold outlined area of the grid) contains one balloon and one iron ball. Balloons are light and float, and thus must be placed at the top, immediately under black cells, other balloons or the upper grid border. Iron balls are heavy and sink, and thus must be placed at the bottom, immediately above a black cell, other iron balls or the lower grid border.

[The puzzles in the contest will be of sizes 7x7, 8x8 and 10x10. This example is 6x6.]

Penpa for example: <https://git.io/J3elb>



19-20 Stargazing

5 + 7 points

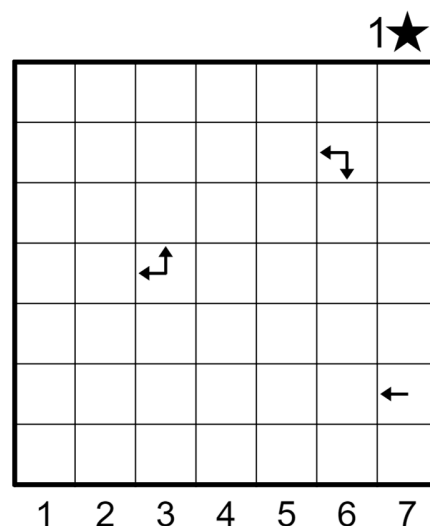
Fill some cells with stars so that there are two stars (one in the example) in each row and column. Stars cannot touch one another, even diagonally.

The arrow clues indicate all the directions (up, down, left, and right) where the nearest star/stars is/are located when looking from that square. Stars cannot be placed in cells with arrow clues.

The numbers given below are just for answer key purposes.

[The puzzles in the contest will be of sizes 9x9 and 10x10. This example is 7x7.]

Penpa for example: <https://git.io/JOjMI>



21-22 Dosun-Fuwari Park

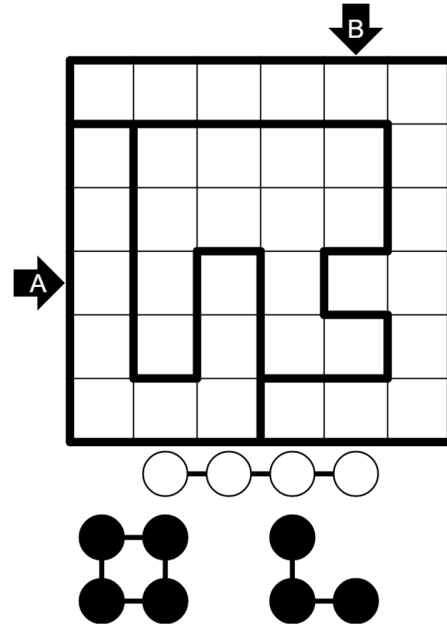
3 + 3 points

Place balloons (white circle shapes) and iron balls (black circle shapes) into the grid so that each room (bold outlined area of the grid) contains one balloon and one iron ball. Balloons are light and float, and thus must be placed at the top, such that at least one cell of their shape is immediately under black cells, other balloons or the upper grid border. Iron balls are heavy and sink, and thus must be placed at the bottom, such that at least one cell of their shape is immediately above a black cell, other iron balls or the lower grid border.

Additionally, no balloon may share an edge with a ball. The shapes below show the shapes that balloons (white circle shapes) and balls (black circle shapes) are allowed to form respectively within a given region. Shapes can be repeated, rotated and reflected.

[The puzzles in the contest will be of sizes 7x7 and 10x10. This example is 6x6.]

Penpa for example: <https://git.io/JOjX0>



Solutions

For this round, all answer keys will NOT be the same for all puzzles.

The keys are given section by section.

Star Battle & Stargazing - For each row from top to bottom enter the column number of the left-most star. Enter the unit's digit for multi-digit numbers.

Akari - For each row from top to bottom enter the number of lightbulbs. If there are none in a row, enter 0 for that row.

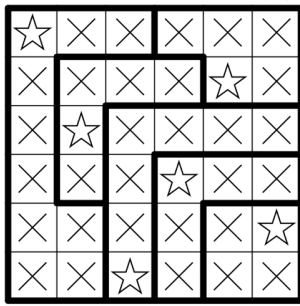
Minesweeper - For each row from top to bottom enter the number of Mines. Enter the unit's digit for multi-digit numbers. If there are none in a row, enter 0 for that row.

Myopia (Shapes) & Statue Park - For each marked row/column, enter the contents of each cell from left to right/top to bottom. For cells occupied by shapes, enter the label of the shape as given in the bank below and enter "-" for cells not occupied by shapes.

Dosun Fuwari & Dosun Fuwari Park - For each marked row/column, enter the contents of each cell from left to right/top to bottom. Enter 1 for a cell occupied by a balloon, 2 for a cell occupied by a ball and 0 for a blank or black cell.

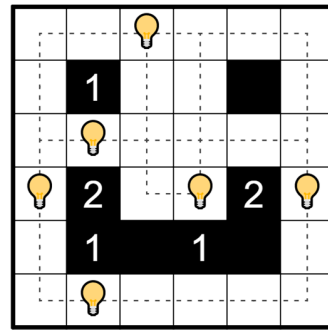
Star Battle

1★



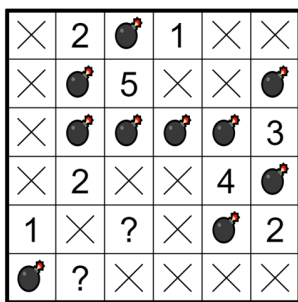
1 2 3 4 5 6
Key: 152463

Akari



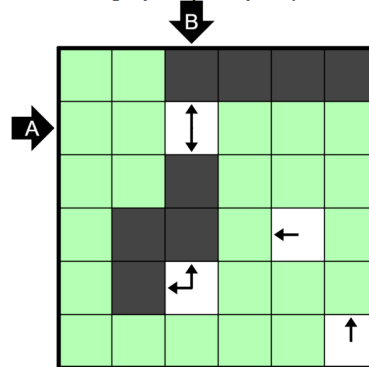
Key: 101301

Minesweeper



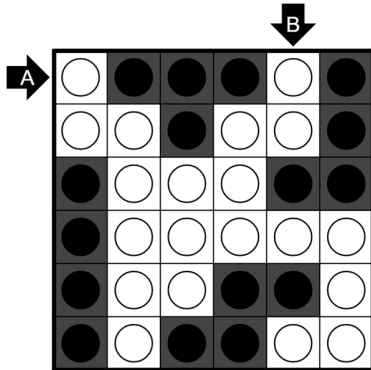
☛ = 10
Key: 124111

Myopia (Shapes)



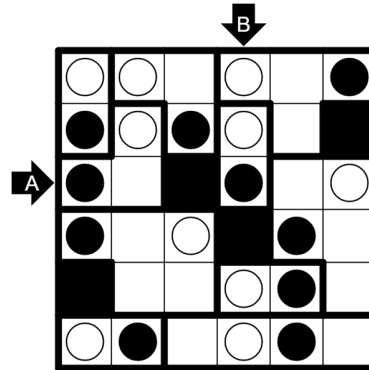
Key: -----, I-SS--

Statue Park



Key: -TTT-L, --L-S-

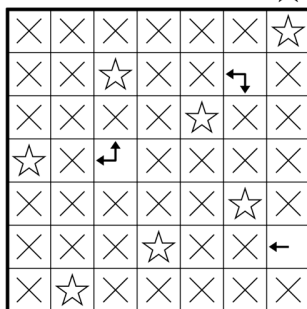
Dosun-Fuwari



Key: 200201, 112011

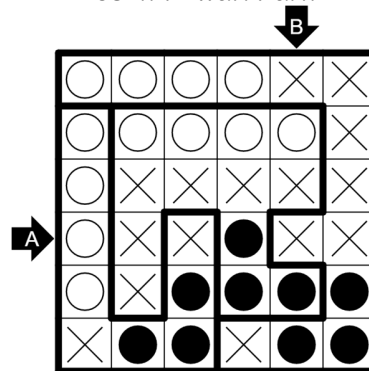
Stargazing

1★



1 2 3 4 5 6 7
Key: 7351642

Dosun-Fuwari Park



Key: 100200, 010022