puzzle
ramayan

**and**

Episode – 3
17th – 20th March

Object Placement and Pentomino
by
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Puzzle Ramayan rounds will also serve as qualifiers for Indian Puzzle Championship for year 2017. Please check http://logicmastersindia.com/PR/2016-17pr.asp for details.

About this Episode

This episode has 22 Puzzles from the following eight puzzle types:

- 3* Battleships
- 3* Akari
- 3* Minesweeper
- 2* Battleships Instructionless
- 3* Classic Tetromino/Pentomino
- 3* Tetromino/Pentomino Observer
- 3* Hungarian Tetromino/Pentomino
- 2* Classic Tetromino/Pentomino Instructionless

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 after 17th March (but before 20th March), 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.

Battleships	1, 8, 5
Akari	1, 4, 5
Minesweeper	1, 7, 2
Battleships Instructionless	2, 5
Classic Tetromino/Pentomino	3, 3, 9
Teromino/Pentomino Observer	3, 3, 9
Hungarian Tetromino/Pentomino	5, 2, 9
Tetromino Pentomino Instructionless	3, 10

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 submission reduces 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 8 pages. We expect you to print and solve on page, so you would need to have a printer accessible with enough paper.

Battleships

1 + 8 + 5 points

Place the given fleet of ships with the shapes of the ships as shown. The numbers outside the grid indicate the number of cells occupied by ships in that row or column. Ships cannot touch each other, not even diagonally. The ships may be rotated. Some cells are known to be water and are indicated by waves.
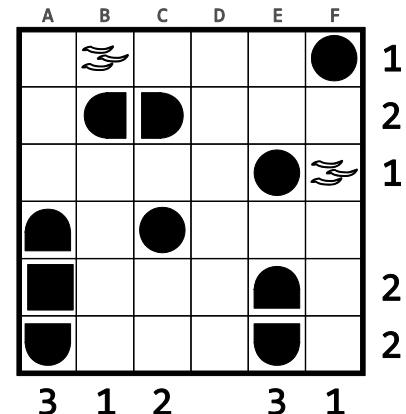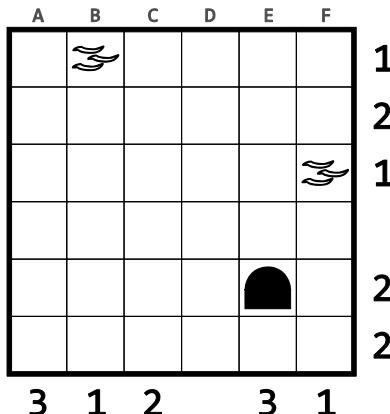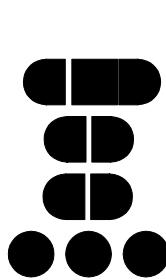
Answer key: For each row from top to bottom, enter the column position of first ship segment. (- if no ships in a row)
Example: FBEAAA

Akari

1 + 4 + 5 points

Place lightbulbs in some of the white cells so that all white cells are illuminated. Lightbulbs illuminate all cells they 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.
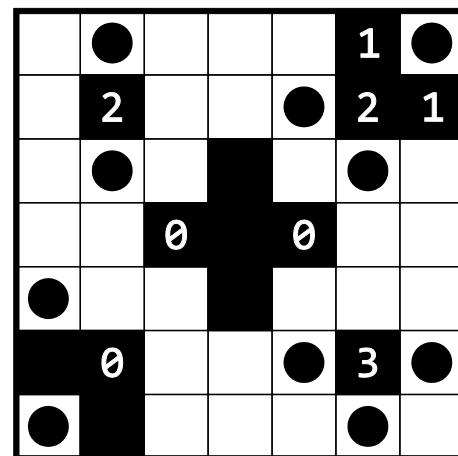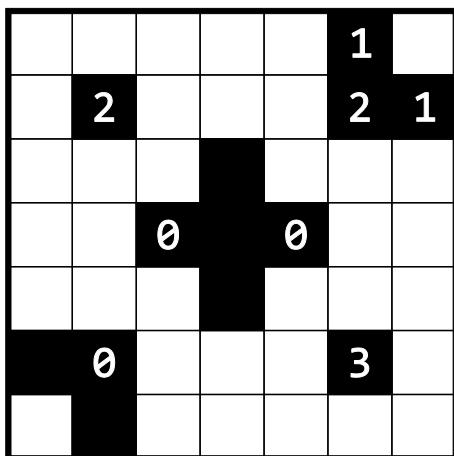
Answer key: Enter the number of light bulbs for each row, from top to bottom.
Example: 2120122

Minesweeper

Place mines into some empty cells in the grid such that the numbers in the grid represent the number of mines in the neighboring cells, including diagonal ones.

2		3	2		0
1		5			2
2					3
2		3	3		1

2	●	3	2		0
●		●	●		
1		5	●	●	2
2		●	●	●	3
●	●	●	●	●	
2		3	3		1

Answer key: Enter the number of mines for each row, from top to bottom.

Example: 132350

Battleships Instructionless

The rules of this puzzle vary slightly from the Battleships rules. One example with solution will be given in the puzzle booklet to demonstrate the change in the rules. It is part of solving process to determine the rule changes by exploring/solving the examples. There will not be any worded instruction in the puzzle booklet for this puzzle.

Classic Tetromino/Pentomino

3 + 3 + 9 points

Place the given set of polyominos in the grid. Polyominos do not touch each other, not even diagonally. The numbers outside the grid indicate the number of cells occupied by polyomino elements in that row or column. Polyominos can be rotated or reflected. Polyominos cannot use any of the black squares.
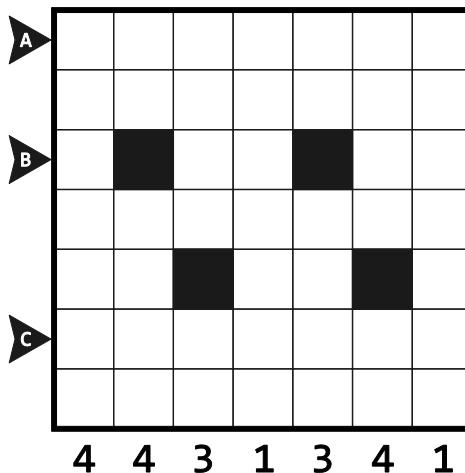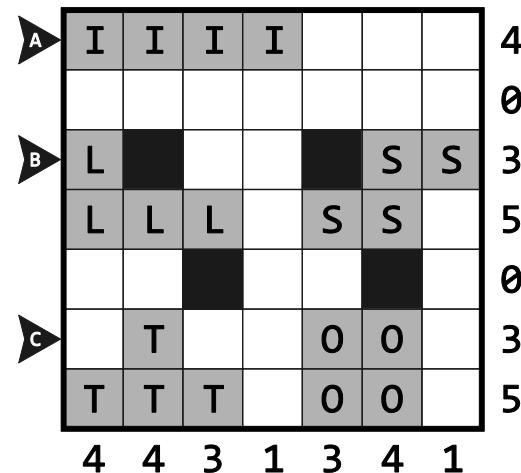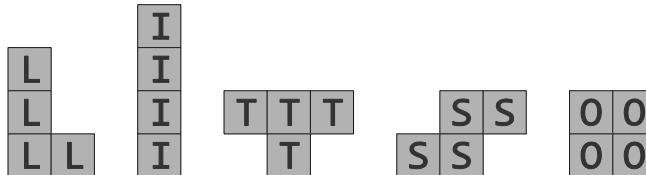
Answer key: Enter the letters corresponding to first two polyominos seen from the marked directions. (– if not enough polyominos)

Example: I-,LS,TO

Tetromino/Pentomino Observer

Place the given set of polyominos in the grid. Polyominos do not touch each other, not even diagonally. The numbers in the grid indicate the total number of empty cells that can be seen from that cell till it sees a polyomino or border in all four directions, excluding the cell itself. Polyominos can't be placed on cells with numbers. Polyominos can be rotated or reflected.
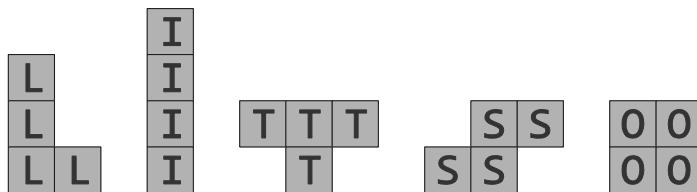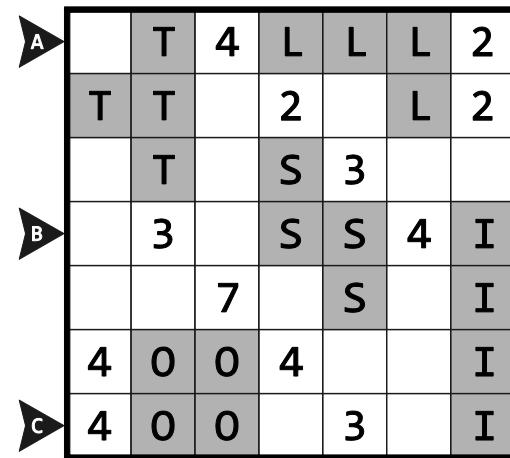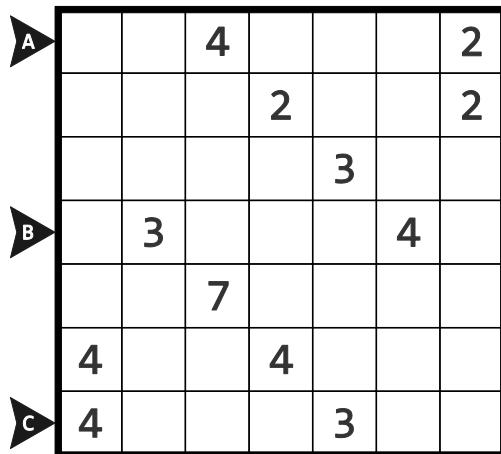
Left grid (puzzle):

A			4				2
				2			2
					3		
B		3				4	
			7				
	4			4			
C	4				3		

Right grid (solution):

A		T	4	L	L	L	2
	T	T		2		L	2
		T		S	3		
B		3		S	S	4	I
			7		S		I
	4	0	0	4			I
C	4	0	0		3		I

Polyomino pieces:

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        I
 L      I
 L      I            T T T      S S      0 0
 L L    I              T      S S        0 0
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Answer key: Enter the letters corresponding to first two polyominos seen from the marked directions. (– if not enough polyominos)

Example: TL,SI,OI

Hungarian Tetromino/Pentomino

Place the given set of polyominos in the grid. Polyominos do not touch each other, not even diagonally. All cells occupied by polyominos are numbered in sequence, starting from 1. Every third numbered cell is marked by grey colour and is given as a clue. Polyominos can be rotated or reflected.
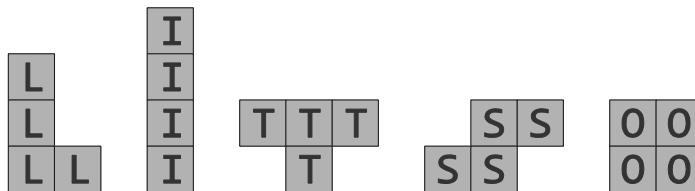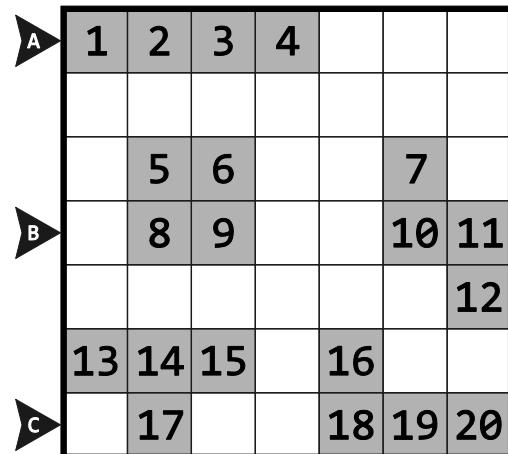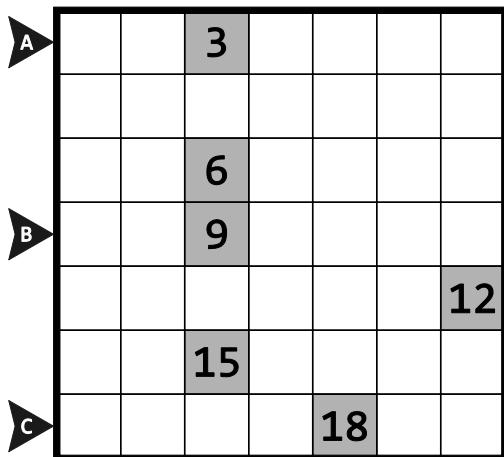
Answer Key: Enter the letters corresponding to first two polyominos seen from the marked directions. (– if not enough polyominos)

Example: I-,OS,TL

Classic Tetromino/Pentomino Instructionless

The rules of this puzzle vary slightly from the Classic Tetromino/Pentomino rules. One example with solution will be given in the puzzle booklet to demonstrate the change in the rules. It is part of solving process to determine the rule changes by exploring/solving the examples. There will not be any worded instruction in the puzzle booklet for this puzzle.