

Section-2

d2
Qns

Towers of Hanoi :-

The towers of Hanoi also called the "towers of Brahma" or "Lucas' Tower".

- Sometimes pluralized as "Towers."
- It is a mathematical game or puzzle.
- It consists of three rods and a no. of disks of different size, which can slide onto any rod.
- The puzzle starts with the disks in a neat stack in ascending order of size on one rod, the smallest at the top, thus making a "conical shape."
- The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules :-
 - (i) Only one disk can be moved at a time.
 - (ii) Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack or on an empty rod.

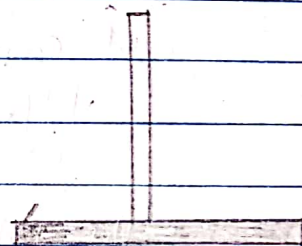
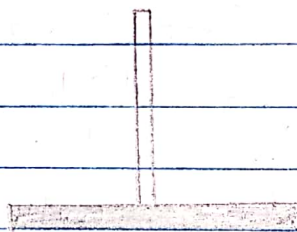
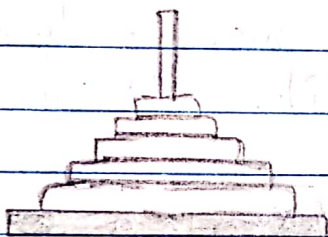
(iii) No larger disk may be placed on top of a smaller disk.

• With 3 disks, the puzzle can be solved in 7 moves.

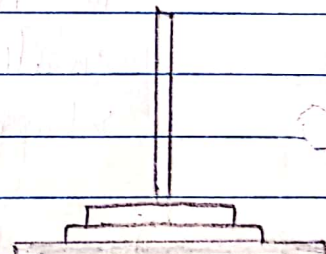
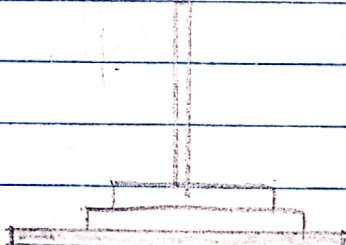
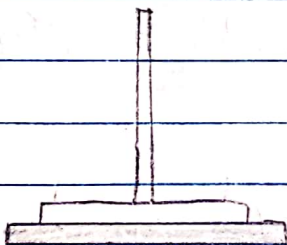
• The minimal no. of moves required to solve a tower of Hanoi puzzle is " $2^n - 1$ ", where

$n \rightarrow$ is the no. of disks.

①



②



③

