1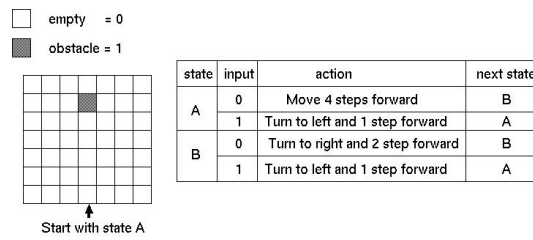. Following the transition table of the FSA shown below, draw the trace of machine that starts the center of botom of the grid-world shown with its state being A.

| empty | = 0 |
| obstacle | = 1 |

state	input	action	next state
A	0	Move 4 steps forward	B
	1	Turn to left and 1 step forward	A
B	0	Turn to right and 2 step forward	B
	1	Turn to left and 1 step forward	A

Start with state A

2. Create a transion table of the FSA that recognizes (accepts) strings on alphabet $\{a, b, c, d\}$ with an alphabetical order, such as *aabcccdd*.

3. Using the Rule shown below, derive the string *aaaabbbbcccc*.

S => a b c
S => a S B c
b B => b b
c B => B c