Student Information

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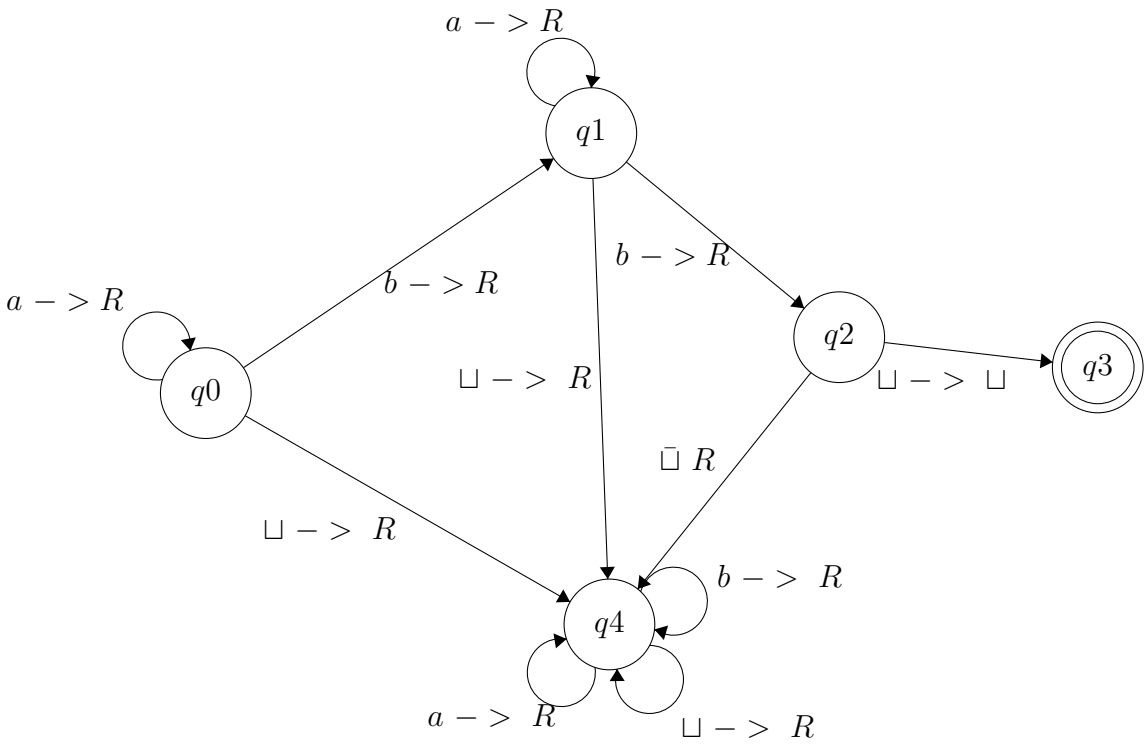
Answer 1

1-1954
2-Enigma
3-Turing test
4-The Chemical Basis of Morphogenesis
5-The Imitation game

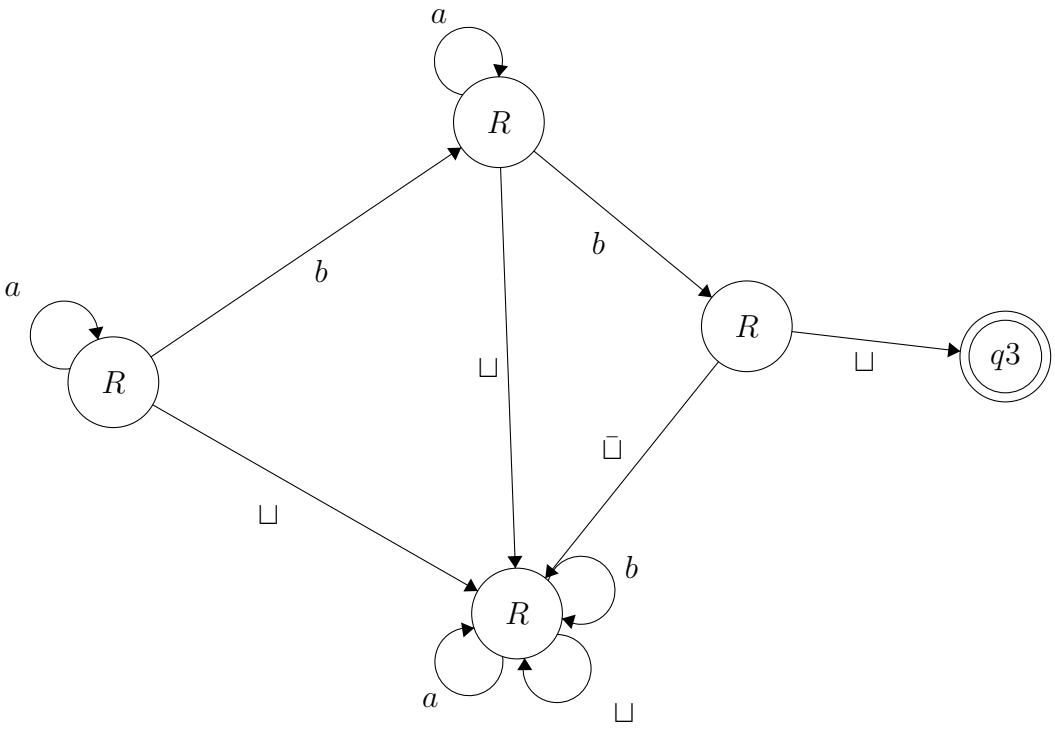
Answer 2

a)
M={K,Σ,δ,q0,H}
K={q_0, q_1, q_2, q_3, q_4}
Σ = {a,b,⊔,Start symbol}
δ:

q	σ	$\delta(q, \sigma)$
q0	a	(q0, ->)
q0	b	(q1, ->)
q0	⊔	(q4, ->)
q0	start sym	(q0, ->)
q1	a	(q1, ->)
q1	b	(q2, ->)
q1	⊔	(q4, ->)
q1	start sym	(q1, ->)
q2	a	(q4, ->)
q2	b	(q4, ->)
q2	⊔	(q3, ⊔)
q2	start sym	(q4, ->)
q4	⊔	(q4 , ->)
q4	a	(q4, ->)
q4	b	(q4, ->)
q4	start sym	(q4, ->)



Is the resulting diagram for the table.
b)



Is the diagram using predefined basic machines such as R.

Answer 3

-Our First tape remain unchanged in order to check the a and b whenever we want.

-We traverse the input in first tape until we reach the comma, copy its content to the tape 3 (store a), and continue traversing and copying the remaining content to tape 2 (store b).

-We send the input between starting symbol and comma from tape 1 (a) and the content in tape 3 to M_x in order to perform one step of the power operation. We decrease the content in tape 2 by 1 and if it reaches one, the machine halts. We perform this step until it halts. We change the content of tape 3 to the new calculated value in M_x. The result in tape 3 is our value.