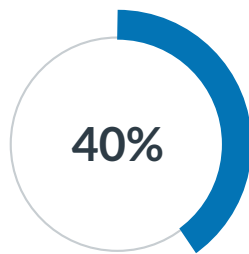


Results

Chi-Hao Tu

3 questions require grading



6

Out of 15 points

56:34

Time for this attempt

Your Answers:

1

1 / 1 point

Consider a tree that shows the computation of a non-deterministic Turing Machine. What do you need to see on the branches on the tree to determine that the computation ended with an accept.

- ☐ all branches of computation reach an accept
- ☒ One branch of computation reaches an accept
- ☐ no branch of computation goes infinitely
- ☐ more than half of the branch of computations reach an accept

2

1 / 1 point

Nondeterministic Turing machines recognize more languages than standard Turing machines?

☐ True


False

3

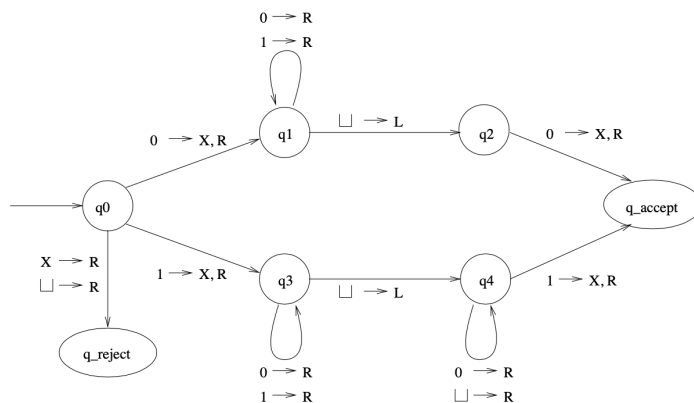
5 points possible

Turing Machine M has 7 states $\{q_0, q_1, q_2, q_3, q_4, q_{\text{accept}}, q_{\text{reject}}\}$

The alphabet is $\Sigma = \{0, 1\}$

The start state is q_0

Assume missing transitions go to a reject state.



- Write the sequence of configurations for the following input
 - 11
 - 01110
- Describe in a few words the behavior of the TM on input 10
- What is the language of this TM?

1.
 - 1.1 $q_0 11 \rightarrow x q_3 1 \rightarrow x1 q_3 B \rightarrow x q_4 1 \rightarrow xx$ accept
 - 1.2 $q_0 01110 \rightarrow x q_1 1110 \rightarrow x1 q_1 110 \rightarrow x11 q_1 10 \rightarrow x111 q_1 0 \rightarrow x1110 q_1 \rightarrow x111 q_2 0 \rightarrow x111x$ accept
2. First, It starts with q_0 and replace x with 1, and then move right to q_3 . Second, replace 0 with 0 and stay the q_3 state. Third, replace blank with blank and move left to state q_4 . Fourth, replace 0 with 0 and move right and stay q_4 state. There is no 1 to move forward so it rejects this string.
3. The first alphabet of the string has to be the same as the last alphabet of the string.

Waiting for grade

4

1 / 1 point

Multi-tape Turing machines recognize more languages than standard Turing machines

☐ True



☒ False

5

1 / 1 point

Consider a tree that shows the computation of a non-deterministic Turing Machine. What do you need to see on the branches on the tree to determine that the computation ended with a reject.

☐ One branch of computation reaches a reject



☒ all branches of computation reach a reject

☐ all branch of computation goes on infinitely

☐ more than half of the branches of computation reach a reject

6

1 point possible

In a Turing machine state diagram why is it that there are no transitions that leave an accept or reject state?

Once a Turing machine reaches the accept or reject states, the Turing machine halts. So there is no need for any transitions.

Waiting for grade

7

3 points possible

This question type cannot be printed

Draw the state diagram of a Turing Machine for the following Language
 $L = \{a^m b^n \mid m = 2n, m \geq 0, n \geq 0\}$



Quiz turning machine.pdf
350Kb

Waiting for grade

8

1 / 1 point

If Language L is decidable so is its complement



True



False

9

1 / 1 point

If an algorithm exists to solve some problem, then a Turing machine also exists to solve that problem.



True



False