Different Turing machine classes have different power; which means each class accept different set of languages.

○ True ◉ False

QUESTION 2

Since b^* is regular language, then it is Turing Machine acceptable one.

◉ True ○ False

QUESTION 3

Multi-tape Turing machine does not have the same power as a single-tape Turing machine.

○ True ◉ False

QUESTION 4

Turing Machine with multiple track tape have different read/write head for each track.

○ True ◉ False

QUESTION 5

For every context-free language there exists a Turing Machine accepts that language.

◉ True ○ False

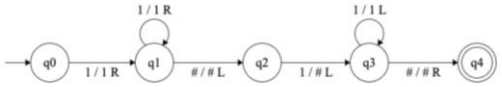
QUESTION 6

$L = \{uu^R \mid u \in \Sigma^*\}$ is Turing Machine acceptable language.

◉ True ○ False

QUESTION 7

Consider the following Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q4, \delta\}$ where $Q = \{q0, q1, q2, q3, q4\}$, $\Sigma = \{1\}$, and $\Gamma = \{1, \#\}$.



Let $w = 11111$, the initial configuration is:

○ a. $q4\ 11111$

○ b. $11111\ q0$

◉ c. $q0\ 11111$

○ d. $q1\ 11111$

QUESTION 8

Recall **Question 7** Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q4, \delta\}$ where $Q = \{q0, q1, q2, q3, q4\}$, $\Sigma = \{1\}$, and $\Gamma = \{1, \#\}$.

Let $w = 11111$, the final configuration is:

○ a. $q4\ 111111$

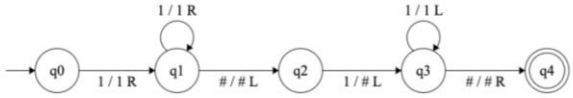
◉ b. $q4\ 1111$

○ c. $1111\ q4$

○ d. $q0\ 1111$

QUESTION 9

Recall **Question 7** Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q4, \delta\}$ where $Q = \{q0, q1, q2, q3, q4\}$, $\Sigma = \{1\}$, and $\Gamma = \{1, \#\}$.



M computes $f(x)$ which:

○ a. Removes the first 1 of x where $x \in L = \{1w \mid w \in \{1\}^*\}$

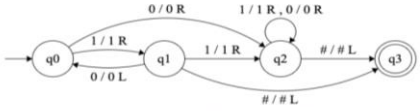
◉ b. Removes the last 1 of x where $x \in L = \{w1 \mid w \in \{1\}^*\}$

○ c. Inserts 1 to the last of x where $x \in L = \{w \mid w \in \{1\}^*\}$

○ d. Inserts 1 to the first of x where $x \in L = \{w \mid w \in \{1\}^*\}$

QUESTION 10

Consider the following Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q3, \delta\}$ where $Q = \{q0, q1, q2, q3\}$, $\Sigma = \{0, 1\}$, and $\Gamma = \{0, 1, \#\}$.



Suppose the current configuration is 1 $q1$ 0100. The next configuration will be:

◉ a. $q0\ 10100$

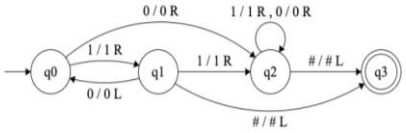
○ b. None

○ c. $10\ q2\ 100$

○ d. $10\ q0\ 100$

QUESTION 11

Recall Question 10 Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q3, \delta\}$ where $Q = \{q0, q1, q2, q3\}$, $\Sigma = \{0, 1\}$, and $\Gamma = \{0, 1, \#\}$.



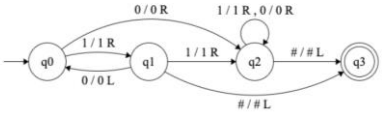
Is the string10100 accepted by M?

○ Yes

◉ No

QUESTION 12

Recall Question 10 Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q3, \delta\}$ where $Q = \{q0, q1, q2, q3\}$, $\Sigma = \{0, 1\}$, and $\Gamma = \{0, 1, \#\}$.



Is the string11100 accepted by M?

◉ Yes

○ No

QUESTION 13

Recall Question 10 Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q3, \delta\}$ where $Q = \{q0, q1, q2, q3\}$, $\Sigma = \{0, 1\}$, and $\Gamma = \{0, 1, \#\}$.

The language accepted by M is:

○ a. None

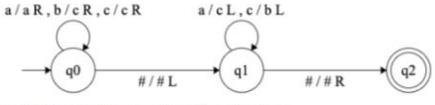
○ b. $L = \{w \in \{0,1\}^* \mid w \text{ does not end with } 10\}$

◉ c. $L = \{w \in \{0,1\}^* \mid w \text{ does not start with } 10\}$

○ d. $L = \{w \in \{0,1\}^* \mid w \text{ does not start with } 1\}$

QUESTION 14

Consider the following Turing machine M: $M = \{Q, \Sigma, \Gamma, \#, q0, q2, \delta\}$ where $Q = \{q0, q1, q2\}$, $\Sigma = \{a, b, c\}$, and $\Gamma = \{a, b, c, \#\}$.



Let $q0\ aaac$ be the initial configuration, the final configuration is:

○ a. $q2\ aaab$

○ b. $q2\ cccc$

◉ c. $q2\ cccb$

○ d. None