Register for Certification exam (https://examform.nptel.ac.in/2022_04/exam_form/dashboard)

Course outline

How does an NPTEL online course work? ()

Week - 0 ()

Week - 1 ()

Week - 2 ()

Week - 3 ()

More closure properties of regular languages (unit?unit=34&lesson=35)

Non-regular languages and pumping lemma (unit?unit=34&lesson=36)

Examples of non-regular languages (unit?unit=34&lesson=37)

DFA minimization (unit?unit=34&lesson=38)

Introduction to CFGs (unit?unit=34&lesson=39)

Quiz: Week 3: Assignment 3

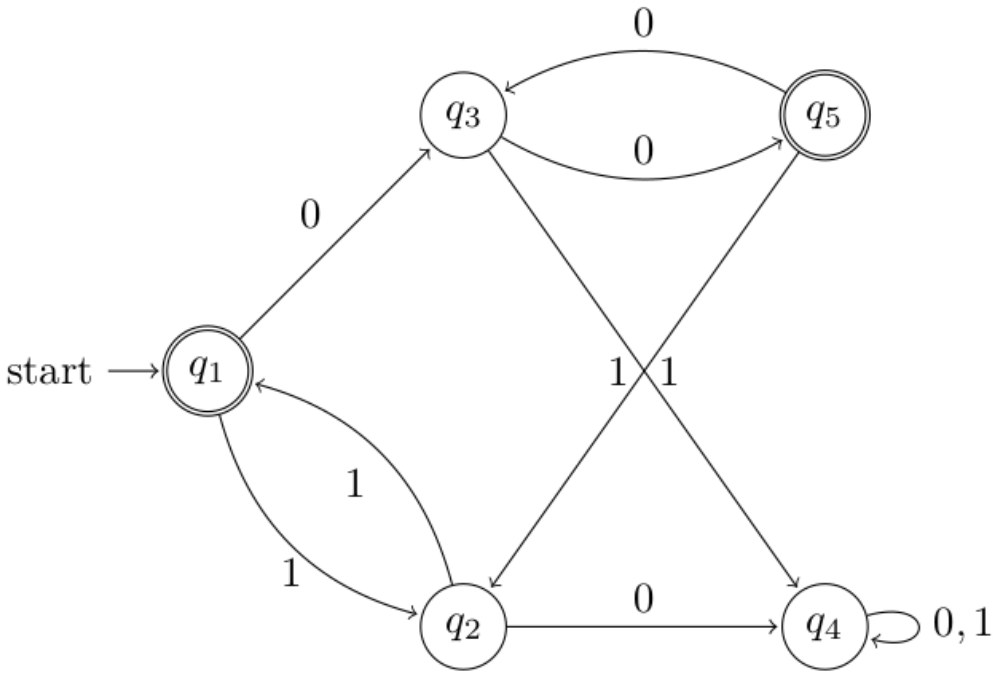
Week 3: Assignment 3

The due date for submitting this assignment has passed.

Due on 2022-08-17, 23:59 IST.

As per our records you have not submitted this assignment.

1) Consider the following DFA: ***1 point***



Which of the following pairs of states is a pair of equivalent states ?

- $\{2, 3\}$
- $\{1, 5\}$
- $\{4, 5\}$
- $\{1, 2\}$

No, the answer is incorrect.
Score: 0

(assessment?name=88)

Feedback For Week 3 (unit?unit=34&lesson=40)

Week - 4 ()

Week - 5 ()

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Problem Solving Session ()

Accepted Answers:
$\{1, 5\}$

2) In the previous question, what is the number of states of the minimized DFA ? ***1 point***

- 2
- 3
- 4
- 5

No, the answer is incorrect.
Score: 0

Accepted Answers:
4

3) Consider the relation $p \approx q$ defined as $x \in \Sigma^*\ \delta(p, x) \in F \iff \delta(q, x) \in F$, defined for a DFA $(Q, \Sigma, \delta, q_0, F)$Which of the following statements is correct? ***1 point***

- If $p \approx q$ and $q \approx r$ then $p \approx r$
- If $p \approx q$ then $q \not\approx p$
- Given relation is not reflexive
- Given relation is not transitive

No, the answer is incorrect.
Score: 0

Accepted Answers:
If $p \approx q$ and $q \approx r$ then $p \approx r$

4) Consider a DFA $(Q, \Sigma, \delta, q_0, F)$. Let $p \in Q,\ a \in \Sigma$ and $y \in \Sigma^*$, which of the following is always same as $\delta(\delta(p, y), a)$? ***1 point***

- $\delta(p, ay)$
- $\delta(p, ya)$
- $\delta(\delta(p, a), y)$
- $\delta(p, y)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\delta(p, ya)$

5) Which of the following languages defined over $\{a, b\}^*$ is regular ? ***1 point***

- $\{a^n b^n | n \geq 0\}$
- $\{a^n | n \text{ is a power of } 2\}$
- $\{a^n | n \text{ is prime}\}$
- $\{a^m b^n | m, n \geq 0\}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\{a^m b^n | m, n \geq 0\}$

6) Consider a regular language L over $\{0, 1\}^*$, which of the following languages are regular? $(\text{Rev}(w) \text{ is reverse of string } w)$ ***1 point***

- $\{ww | w \in L\}$

- $\{\text{Rev}(w)|w \in L\}$
- $\{w\text{Rev}(w)|w \in L\}$
- $\{w\bar{w}|\bar{w} \text{ is bitwise NOT of } w, w \in L\}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\{\text{Rev}(w)|w \in L\}$

7) Which of the following statements is False? ***1 point***

- All regular languages satisfy pumping lemma
- All non-regular languages do not satisfy pumping lemma
- Pumping lemma can be used to prove if a language is not regular
- Some non-regular languages satisfy pumping lemma

No, the answer is incorrect.
Score: 0

Accepted Answers:
All non-regular languages do not satisfy pumping lemma

8) Suppose pumping lemma in the contra-positive form is being applied on the language $L = \{0^m 1^n | m > n\}$ in order to prove that it is not regular. Given *p* (refer to pumping lemma), which of the following could be the choice of string from *L* of length at least *p* in order to proceed. ***1 point***

- $0^{p+1}1^p$
- $0^p 1^{p+1}$
- $0^{p+2}1^p$
- $0^p 1^{p+2}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$0^{p+1}1^p$

9) Continuing from the previous question, given any partition of the selected string *xyz* such that $|xy| \leq p \text{ and } |y| > 0$, which one of the following should be the choice of *i*, where $i \geq 0$ such that $xy^i z$ is not in *L*. ***1 point***

- 0
- 2
- 3
- Any of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
0