CS4402-Quiz_1 (CS4402 Formal Languages & Automata Theory)

Disable Immersive Reader

Points:

5/10

1.If a Language L = ∅, then |L| = ?

(0/1 Point)

- 1
- 2
- 0
- None of the mentioned options

2.The maximum number of transitions in a DFA M=(Q, ∑, δ, q0, F) is? (Note: Treat ^ as an exponentiation operator)

(1/1 Point)

- |∑|
- |Q| * |∑|
- |Q| * |∑| * |F|
- 2^|Q|
- |Q|

3.The number of states in minimal finite automata (also it is complete) for the language L = {w | w ∈ (a+b)* and the number of b's in w is less than or equal to n?

(0/1 Point)

- 1
- n+2
- n+1
- n
- n-1

4.When converting epsilon NFA to NFA, the number of states _____

(1/1 Point)

- Increases
- Remains same
- Decreases

5.Consider the following regular expression: r = (a + ab) (a + ab)* Which of the following string(s) belongs to L(r) ? (select all right answers)

(1/1 Point)

- abababababababaaaab

- [ ] abaaaaabbaaab
- [ ] aaaaaaaababababaaab
- [ ] aaababaabaabab
- [ ] abababaaababbbaaa

6.Equivalence between epsilon-NFA and DFA, which of the following statements are true? (select all correct answers)
(0/1 Point)

- [ ] There in no change in the final states
- [ ] May be change in the total number of states
- [ ] There is no change in the initial state
- [ ] May be change in the initial state
- [ ] May be change in the final states
- [ ] Alphabet remains same
- [ ] Number of states in both epsilon NFA and DFA are always equal

7.Consider the following languages L1 = {ab, aabb, aaabbb, aaaabbbb}. L2 = {w | w ∈ (a + b)* and the number a's in w is equal to number of b's in w} Which of the follwing statement is correct?
(0/1 Point)

- ( ) L1 is not regular and L2 is regular
- ( ) Both L1 and L2 are regular
- ( ) Both L1 and L2 are not regular
- ( ) L1 is regular but L2 is not regular

8.Which of the following statement(s) are true with respective Pumping Lemma (Select all right answers)
(1/1 Point)

- [ ] The language which does not satisfies the Pumping Lemma must be non-regular
- [ ] Pumping Lemma is used to prove certain languages are regular
- [ ] The language which satisfies Pumping Lemma is always regular
- [ ] Used to prove that some languages are not regular
- [ ] Every Regular Language satisfies Pumping Lemma

9.When do you say some language L is regular? (Select all correct answers)
(0/1 Point)

- [ ] If we are able to construct a FA for L
- [ ] If we are able to find a regular expression for L
- [ ] IF we are able to find a regular grammar for L
- [ ] If it satisfies Pumping Lemma

10.In the minimized Finite Automata _____ (Select all the correct answers)

(1/1 Point)

- [ ] No dead states
- [ ] No initial state
- [ ] No Final states
- [ ] No Equal states
- [ ] No unreachable states