# CS4402 - FLAT - QUIZ_2 (CS4402 Formal Languages & Automata Theory)

Points:

7/10

1.Which of the following statement(s) are true? (Choose all the wright answers)
(0/1 Point)

- [ ] L = {0}* can be accepted by Deterministic PDA by final final state
- [ ] L = {0}* can be accepted by Non Deterministic PDA by empty stack
- [ ] L = {0}* can be accepted by Deterministic PDA by empty stack
- [ ] L = {0}* can be accepted by Non Deterministic PDA by final state
- [ ] Any regular set R can be accepted by Deterministic PDA by final state

2.We can construct the Deterministic PDA by final state for the language L = {w | number of a's in w is equal to the number of b's in w} over the alphabet {a, b} by using less than or equal to two states?
(1/1 Point)

- Yes
- No
- We can't say

3.If A and B are two languages over the same alphabet. Let D(A, B) = {xy | x ∈ A, y ∈ B, |x| = |y|}. If D(A, B) is context free then
(1/1 Point)

- A and B must be Context Free
- A and B must be regular
- A is context free and B must be regular
- A must be regular and B must be Context Free

4.Consider the grammar G = ( {S, X, Y}, {a, b, c}, {S ->XY, X-> aXb | ∈, Y-> cY | ∈}. Which of the following string(s) will not be generated by G
(1/1 Point)

- [ ] w = aabbbbbcc
- [ ] w = aabbcc
- [ ] w = abbbbbbcc
- [ ] w = aaaaaabbbbbbbccc
- [ ] w = aaabbbcccc

5.Consider the following Turing Machine M with the transitions as follow: δ(q0, 1 ) = (q1, 0 ,R) δ(q1, 1) = (q1, 1, R) δ(q1, 0) = (q2, 1, R) δ(q2, 0) = (q3, 0 , L) δ(q3, 0) = (q0, 0, R) δ(q3, 1) = (q3, 1, L) q0 is the initial state If we given the following input string: w = ....0 0 1 1 1 1 0 0 0 1

1 0 0..... Initially the read write head is positioned at the left most first one What is the output written after the machine halts?

(0/2 Points)

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

6.PDA with at least how many stacks is equal to Turing Machine?

(1/1 Point)

- one
- Two
- Three
- Four

7.A student wrote two CFGs G1 and G2 for generating single c-like array declaration. The dimension of the array is at least one. For example int a[5][]; The grammar use S as start symbol and six terminal symbols: int [ ] ; id num G1: S -> int L; L -> id[ E E -> num] E -> num ] [E G2: S -> int L; L -> id E E -> E [num] E -> [num] Which of the grammars correctly generate the declaration mentioned above?

(2/2 Points)

- Only G1
- Only G2
- Both G1 and G2
- Neither G1 nor G2

8.Let G be the context free grammar and is in the form of Chomsky Normal Form. If we want to derive a string of length n, then the number of productions to be used is (length of derivation)?

(1/1 Point)

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