Started on	Thursday, 13 April 2023, 4:01 PM
State	Finished
Completed on	Thursday, 13 April 2023, 4:10 PM
Time taken	9 mins 36 secs
Grade	**3.33** out of 5.00 (**66.67**%)

Question **1**

Complete

Mark 0.50 out of 0.50

Which of the following strings are NOT matched by the regular expression (1*0*)*:

Select one or more:

- a. ε
- b. 0101
- c. 1010
- d. 0010001
- e. all strings above are **matched** by this regular expression

Question **2**

Complete

Mark 1.00 out of 1.00

Consider the following transition table of an NDFSA (q0 is initial state, q2 is final state):

δ	0	1
→ q_0	$\{q_0, q_1\}$	$\{q_0\}$
q_1	ϕ	$\{q_2\}$
*q_2	ϕ	ϕ

this NDFSA can accept the following language/languages over the alphabet {0,1}:

- a. {w|w ends with 01}
- b. {w|w ends with 1}
- c. {w|w ends with 0}
- d. {w|w ends with 10}

Question 3

Complete

Mark 0.25 out of 0.50

Which of the following is/are regular expression(s)?

Select one or more:

- [x] a. ε
- [ ] b. 0110 - 1
- [x] c. ((11*)*0)* | ab
- [x] d. 001 | *10

Question 4

Complete

Mark 0.50 out of 0.50

Which of the following describes the process of transitioning between states in an NDFSA?

- a. The automaton must transition according to the numerical order of states.
- b. The automaton can only transition to one state at a time.
- c. The automaton can transition to multiple states at the same time.
- d. The automaton can transition to only 2 states at maximum.

Question 5

Complete

Mark 0.50 out of 0.50

Consider the following statement: **There exists a regular language A such that for all languages B, A ∩ B is regular.**

Select one:

- True
- False

Question **6**

Complete

Mark 0.50 out of 0.50

What is the main difference between a deterministic finite state automaton (DFSA) and a nondeterministic finite state automaton (NDFSA)?

- a. NDFSA can recognize more languages than DFSA.
- b. DFSA can recognize more languages than NDFSA.
- c. DFSA and NDFSA can recognize the same languages, but NDFSA can do so with fewer states.
- d. There is no difference between DFSA and NDFSA.

Question **7**

Complete

Mark 0.08 out of 0.50

Which of the automata can recognize the language $a^n b^n \cup a^n b^{2n}$: n>=1

Select one or more:

- a. Non-deterministic PDAs
- b. Turing Machines
- c. Non-deterministic FSAs
- d. Deterministic FSAs
- e. Deterministic PDAs

Question **8**

Complete

Mark 0.00 out of 1.00

Regular expression for the language L = {w ϵ {0, 1}*| w has no pair of consecutive zeros} is:

- a. (01 | 10)*
- b. (1 | 010)*
- c. (1 | 01)* (0 | **ε**)
- d. (1 | 010)* (0 | **ε**)