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1. While finding RE corresponding to TG, if TG has more than one start state, then what action should be taken?

- a) Replace the old final state with the new start state
- b) Eliminate the old start state
- c) Introduce the new start state
- d) Replace the old start state with the final state

Correct answer: b) Eliminate the old start state

2. An FA is a collection of:

- a) Finite states, finite transitions, and finite input letters
- b) Infinite states, infinite transitions, and infinite input letters
- c) Only infinite states and infinite transitions
- d) Only finite states and finite transitions

Correct answer: a) Finite states, finite transitions, and finite input letters

3. If $S = \{a\}$, then which option correctly represents S multiplied by $\{a, aaa, aaaaa, aaaaaa, \dots\}$?

- a) $S\{a, aaa, aaaaa, aaaaaa, \dots\}$
- b) $\{aa, aaaa, aaaaaa, aaaaaaa, \dots\}$
- c) $\{a, aaa, aaaa, aaaaa, \dots\}$
- d) $\{a, aa, aaa, aaaa, \dots\}$

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Correct answer: a) $S\{a, aaa, aaaaa, aaaaaa, \dots\}$

4. An FA of the EVEN-EVEN language shows that it accepts the null string by declaring the _____ as an _____ as well.

- a) Final state, initial state
- b) Final state, null state
- c) Initial state, null state
- d) Initial state, final state

Correct answer: a) Final state, initial state

5. Which statement is false about the PALINDROME LANGUAGE?

- a) An FA can be built for it.
- b) Every word is the reverse of itself.
- c) It is an infinite language.
- d) None of the given options.

Correct answer: b) Every word is the reverse of itself.

6. In an FA, when there is no path from the initial state to the final state, then that FA _____.

- a) Accepts all strings.
- b) Does not accept any string.
- c) Accepts all non-empty strings.
- d) None of the given options.

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Correct answer: b) Does not accept any string.

7. Which one of the following words is not accepted by the given regular expression:

$(a+b)^*(aaa+bbb)(a+b)^*ab?$

- a) abab
- b) baaaa
- c) bbbb
- d) ababaaaab

Correct answer: c) bbbb

8. If we have the regular expression $(a+b)^*(aaa + bbb)(a+b)^*$, then we can draw a TG for the provided RE with a minimum number of _____ state(s).

- a) 0
- b) 1
- c) 2
- d) 3

Correct answer: c) 2

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