CSE 105 Review Quiz 9 - Solutions

Q1: Which of the following is True? (select all that apply) *

- Any subset of a decidable language is decidable.
- Any subset of a recognizable language is recognizable.
- There exists a decidable language which is not recognizable.
- There exists a recognizable language which is not decidable.

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Q2: Which of the following is True? (select all that apply) *

- Recognizable languages are closed under complement.
- Decidable languages are closed under complement.
- Recognizable languages are closed under intersection.
- Decidable languages are closed under intersection.

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Q3: Which of the following languages are recognizable? (Select all that apply) *

- L = \{<M>: M is a Turing machine and L(M) is finite\}
- L = \{<M1, M2, w>: M1, M2 are Turing machines, M1 accepts w and M2 rejects w\}
- L = \{<D, M, w>: D is a DFA, M is a Turing machine, and D rejects w or M accepts w\}
- L = \{<D, M>: D is a DFA, M is a Turing machine, and either D or M rejects the empty string\}

- None of the above
Q4: Which of the following languages are decidable? (select all that apply)

- $L = \{<D, w> : D \text{ is a DFA and } w \notin L(D)\}$
- $L = \{<N, w> : N \text{ is a NFA and } w \in L(N)\}$
- $L = \{<P, w> : P \text{ is a PDA and } w \in L(P)\}$
- $L = \{<M, w> : M \text{ is a TM and } w \in L(M)\}$

Choose: ✔️

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Q5: Select all the true statements below. *

- The complement of $A_{TM}$ reduces to $A_{TM}$
- For any undecidable language $L$, $A_{TM}$ reduces to $L$
- For any undecidable language $L$, it reduces to $A_{TM}$
- For any decidable language $L$, it reduces to $A_{TM}$

Choose: ✔️

Feedback

Good!

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