

Sample Questions with Answers

Computer Science Fundamentals - Algorithms

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Computer Science Fundamentals

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Question 1:

Which of the following pairs have DIFFERENT expressive power?

- A) Deterministic finite automata (DFA) and Non-Deterministic finite automata(NFA)
- B) Deterministic push down automata (DPDA) and Non-deterministic pushdown automata
- C) Deterministic single-tape Turing machine and Non-deterministic single-tape Turing Machine
- D) Single-tape Turing machine and multi-tape Turing machine

[ANSWER] Answer & Explanation:

DPDA cannot handle languages or grammars with ambi

Question 2:

Which of the following denotes Chomskian hierarchy?

- A) REG $\hat{=}$ CFL $\hat{=}$ CSL $\hat{=}$ type0
- B) CFL $\hat{=}$ REG $\hat{=}$ type0 $\hat{=}$ CSL
- C) CSL $\hat{=}$ type0 $\hat{=}$ REG $\hat{=}$ CFL
- D) CSL $\hat{=}$ CFL $\hat{=}$ REG $\hat{=}$ type0

[ANSWER] Answer & Explanation:

No Explanation

Question 3:

Which of the following problem is undecidable?

- A) membership problem for CFL
- B) membership problem for regular sets
- C) membership problem for CSL
- D) membership problem for type 0 languages

[ANSWER] Answer & Explanation:

No Explanation

Question 4:

Which one of the following statement is FALSE?

- A) context-free languages are closed under union
- B) context-free languages are closed under concatenation
- C) context-free languages are closed under intersection
- D) context-free languages are closed under Kleene closure

[ANSWER] Answer & Explanation:

No Explanation

Question 5:

Consider a language L for which there exists a Turing machine (TM), T, that accepts every word in L and either rejects or loops for every word that is not in L. The language L is

- A) NP hard
- B) NP complete
- C) recursive
- D) recursively enumerable

[ANSWER] Answer & Explanation:

No Explanation

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