

Quiz on Computational Theory

Generated on: 2025-05-20 23:33:32

1. Q: What is a Turing Machine capable of emulating?

Options:

- a) Only finite state automata
- b) Only context-free grammars
- c) Both deterministic and non-deterministic finite automata
- d) Only deterministic finite automata and context-free grammars

Correct Answer: d

2. Q: What is the Church-Turing thesis about?

Options:

- a) A mathematical proof that Turing Machines can solve any computational problem
- b) A philosophical hypothesis stating that any effectively calculable function c
- c) A theory that all algorithms are equivalent to each other
- d) A model for artificial intelligence

Correct Answer: b

3. Q: What is the time complexity of an algorithm with Big O notation equal to O

Options:

- a) Linear in n , where n represents the size of input data
- b) Quadratic in n , where n represents the size of input data
- c) Logarithmic in n , where n represents the size of input data
- d) Exponential in n , where n represents the size of input data

Correct Answer: b

4. Q: Which of the following is not a fundamental property of computation accord

Options:

- a) Effectivity
- b) Normal form theorem
- c) Church-Turing thesis
- d) Recursive function theorem

Correct Answer: a

5. Q: Which of the following languages cannot be decided by a Turing Machine?

Options:

- a) The set of all palindromes (strings that read the same forward and backward)
- b) The set of all prime numbers

- c) The set of all strings containing only the letter 'a'
- d) The set of all strings with an even number of 'a's

Correct Answer: b