First Quarter Exam
Data Structures and Algorithms by Larry David
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1. Discuss the key differences between HTTP and HTTPS.

2. Write a Python function to check if a number is prime.

3. Which of the following is an example of a programming language? A. HTML B. CSS C. Python D. JSON E. XML

4. Which of the following are key benefits of pair programming? A. [ ] Reduced development time B. [ ] Increased code quality C. [ ] Limited communication D. [ ] Enhanced team collaboration E. [ ] Higher bug density

5. Explain the concept of database normalization and its importance.

6. A linked list is a linear data structure that stores elements in a contiguous memory block. [ ] True [ ] False

7. Which of the following is a sorting algorithm that works by repeatedly selecting the minimum element from the unsorted part of the array and putting it in the sorted part? A. Bubble Sort B. Insertion Sort C. Merge Sort D. Selection Sort E. Quick Sort

8. Explain the concept of object-oriented programming.

9. What is the output of the following code?

10. Which of the following are key aspects of agile software development? A. [ ] Heavy documentation B. [ ] Predictive planning C. [ ] Adaptive planning D. [ ] Rigidity E. [ ] Collaborative teams

11. What is the output of the following code?

12. What is the output of the following code?

13. Inheritance allows a subclass to inherit attributes and behaviors from multiple superclasses. [ ] True [ ] False

14. What are the characteristics of a well-designed RESTful API?

15. A hash map data structure allows elements to be stored in a sorted order. [ ] True [ ] False

16. Write a Python function to calculate the factorial of a non-negative integer using recursion.