Week 7 Assignment 7

1. Which of the following recursive algorithms is used in the concept of bubble sort?
   a. Linear search
   b. Binary search
   c. Quick sort
   d. Merge sort

2. Which of the following algorithms can be modeled into a graph problem?
   a. Dijkstra's algorithm
   b. Kruskal's algorithm
   c. Depth-first search
   d. Breadth-first search

3. What is the purpose of a hash table?
   a. To store and retrieve data efficiently
   b. To sort data
   c. To perform arithmetic operations
   d. To implement a queue

4. Which of the following is not a property of an algorithm?
   a. Correctness
   b. Efficiency
   c. Reliability
   d. Complexity

5. What is the purpose of a specification document?
   a. To define the algorithm's purpose
   b. To document the algorithm's usage
   c. To provide a functional interface
   d. To explain the algorithm's implementation

6. List the steps involved in the implementation of a recursive algorithm:
   a. Define the base case(s)
   b. Define the recursive case(s)
   c. Define the iteration case(s)
   d. Define the iteration frequency

7. Choose the correct option for the following equation:
   \[ \frac{1}{x} = \frac{1}{y} \]
   a. \[ x = y \]
   b. \[ x = \frac{1}{y} \]
   c. \[ y = \frac{1}{x} \]
   d. \[ x = \frac{1}{x} \]

8. Propositional logic statements are expressions that can be evaluated as:
   a. True or False
   b. Yes or No
   c. Correct or Incorrect
   d. Valid or Invalid

9. True or False: While writing a specification document, the purpose of the document is to:
   a. Provide a functional interface
   b. Define the algorithm's usage
   c. Explain the algorithm's implementation
   d. Specify the algorithm's purpose

10. What is the purpose of a specification document in the context of a software development project?
    a. To define the algorithm's purpose
    b. To document the algorithm's usage
    c. To provide a functional interface
    d. To explain the algorithm's implementation

11. A recursive algorithm is characterized by:
    a. A base case
    b. A recursive case
    c. An iterative case
    d. Both a and b

12. An algorithm is considered correct if:
    a. It satisfies all input requirements
    b. It produces a result
    c. It is efficient
    d. Both a and b

13. What is the purpose of a specification document in the context of a software development project?
    a. To define the algorithm's purpose
    b. To document the algorithm's usage
    c. To provide a functional interface
    d. To explain the algorithm's implementation

14. The correct form of the equation \( x^2 + y^2 = 1 \) is:
    a. \( x^2 = 1 - y^2 \)
    b. \( x = \sqrt{1 - y^2} \)
    c. \( y = \sqrt{1 - x^2} \)
    d. \( x = \sqrt{1 - y^2}, y = \sqrt{1 - x^2} \)