1. What is a greedy algorithm in computer science?
   1. A brute-force algorithm
   2. **An algorithm that always makes the locally optimal choice at each step**
   3. An algorithm that considers all possible solutions
   4. An algorithm that uses dynamic programming
2. Which problem can be solved using the greedy algorithm?
   1. Traveling Salesman Problem
   2. Knapsack Problem
   3. **Shortest Path Problem**
   4. All of the above
3. In a greedy algorithm, which choice is made at each step?
   1. The globally optimal choice
   2. The choice that minimizes the problem size
   3. The choice that maximizes the problem size
   4. **The locally optimal choice**
4. What is the primary advantage of greedy algorithms?
   1. Guaranteed to find the optimal solution
   2. **Simplicity and efficiency**
   3. Suitable for all types of problems
   4. None of the above
5. Which problem does the Kruskal's algorithm solve?
   1. Shortest Path Problem
   2. **Minimum Spanning Tree Problem**
   3. Traveling Salesman Problem
   4. Knapsack Problem
6. Which greedy algorithm is used to find the minimum spanning tree of a graph?
   1. Dijkstra's algorithm
   2. Prim's algorithm
   3. Huffman coding
   4. **Kruskal's algorithm**
7. Which data structure is commonly used in implementing a priority queue for greedy algorithms?
   1. Array
   2. Linked list
   3. **Binary heap**
   4. Stack
8. What is the time complexity of Kruskal's algorithm for finding the minimum spanning tree?
   1. O(V^2)
   2. O(V log V)
   3. **O(E log E)**
   4. O(V^3)
9. Which greedy algorithm is used to find the shortest path in a weighted graph?
   1. **Dijkstra's algorithm**
   2. Prim's algorithm
   3. Kruskal's algorithm
   4. Bellman-Ford algorithm
10. What is the time complexity of Dijkstra's algorithm for finding the shortest path?
    1. O(V)
    2. **O(V^2)**
    3. O(E)
    4. O(V log V)
11. In Huffman coding, which characters are assigned shorter codes?
    1. **Characters with higher frequencies**
    2. Characters with lower frequencies
    3. Characters with equal frequencies
    4. Characters with special symbols
12. What is the primary objective of Huffman coding?
    1. **Data compression**
    2. Data encryption
    3. Sorting data
    4. Hashing data
13. Which greedy algorithm is used for optimal merge patterns?
    1. Huffman coding
    2. Kruskal's algorithm
    3. Prim's algorithm
    4. **Merge Sort**
14. In the coin change problem, what is the goal of the greedy algorithm?
    1. **To minimize the number of coins used**
    2. To maximize the number of coins used
    3. To find the most valuable coin
    4. To find the least valuable coin
15. Which algorithm is used to solve the coin change problem optimally?
    1. Greedy algorithm
    2. **Dynamic programming**
    3. Divide and conquer
    4. Breadth-first search
16. Which of the following problems can be solved using a greedy algorithm?
    1. Sorting a list of integers
    2. Finding the maximum clique in a graph
    3. **Huffman coding for data compression**
    4. Searching for an element in an array
17. What is the main limitation of greedy algorithms?
    1. Inefficiency
    2. Complexity
    3. **Lack of optimality**
    4. None of the above
18. Which of the following statements about greedy algorithms is true?
    1. **Greedy algorithms always provide optimal solutions.**
    2. Greedy algorithms are suitable for solving any problem.
    3. Greedy algorithms are more efficient than dynamic programming.
    4. Greedy algorithms cannot handle optimization problems.
19. Which greedy algorithm is used for task scheduling to minimize waiting time?
    1. Huffman coding
    2. Dijkstra's algorithm
    3. **Shortest Job First (SJF)**
    4. Kruskal's algorithm
20. In the activity selection problem, which activity should be selected first?
    1. **The one with the earliest start time**
    2. The one with the latest start time
    3. The one with the shortest duration
    4. The one with the longest duration
21. What is the time complexity of the greedy activity selection algorithm?
    1. O(n)
    2. **O(n log n)**
    3. O(n^2)
    4. O(2^n)
22. Which of the following problems is NOT solved using a greedy algorithm?
    1. Fractional Knapsack Problem
    2. Huffman coding
    3. Shortest Path Problem
    4. **Sorting an array**
23. Which greedy algorithm is used for finding the optimal Huffman coding?
    1. Dijkstra's algorithm
    2. Kruskal's algorithm
    3. Prim's algorithm
    4. **Huffman coding algorithm**
24. What is the primary application of the greedy algorithm in Huffman coding?
    1. **Data compression**
    2. Cryptography
    3. Sorting
    4. Searching
25. Which of the following statements about greedy algorithms is NOT true?
    1. **Greedy algorithms always find the globally optimal solution.**
    2. Greedy algorithms are simple and easy to implement.
    3. Greedy algorithms may not work for some optimization problems.
    4. Greedy algorithms make locally optimal choices.
26. In Huffman coding, what is the main idea behind assigning shorter codes to frequent characters?
    1. To improve encryption
    2. **To save memory space**
    3. To speed up decoding
    4. To improve sorting
27. What is the primary goal of the greedy algorithm in the coin change problem?
    1. To maximize the number of coins used
    2. **To minimize the number of coins used**
    3. To find the rarest coin
    4. To find the most valuable coin
28. Which greedy algorithm is used for Huffman coding of text data?
    1. Kruskal's algorithm
    2. Prim's algorithm
    3. **Greedy Merge Algorithm**
    4. Huffman Tree Algorithm
29. In the greedy algorithm for Huffman coding, what is the role of the priority queue?
    1. **To sort characters by frequency**
    2. To maintain a queue of characters
    3. To store characters with shorter codes
    4. To select the next character to merge
30. In the greedy algorithm for the coin change problem, which coin is selected at each step?
    1. **The largest available coin**
    2. The smallest available coin
    3. A random coin
    4. The rarest coin
31. Which greedy algorithm is used for finding the optimal merge pattern for files?
    1. Huffman coding
    2. Kruskal's algorithm
    3. **Greedy Merge Algorithm**
    4. Prim's algorithm
32. In the greedy algorithm for Huffman coding, how are characters represented in the tree?
    1. As nodes
    2. As edges
    3. **As leaves**
    4. As roots
33. What is the primary application of the greedy algorithm in the shortest path problem?
    1. **Network routing**
    2. Data compression
    3. Sorting
    4. Cryptography
34. Which greedy algorithm is used for finding the optimal merge pattern in file storage?
    1. Huffman coding
    2. Kruskal's algorithm
    3. **Greedy Merge Algorithm**
    4. Shortest Path Algorithm
35. In the greedy algorithm for the activity selection problem, how are activities selected?
    1. Based on the activity with the highest duration
    2. **Based on the activity with the lowest start time**
    3. Based on the activity with the highest end time
    4. Based on the activity with the lowest end time