Interview 10

**Introduction**

**Aptitude test - 5ques, 10min**

**Dsa Round - 3 ques, 45min**

**React coding - 2 ques, 45min**

**React Theory - 6 ques, 20min**

**Total = 2hrs**

[Source: GFG Jobathon-28](https://practice.geeksforgeeks.org/contest/job-a-thon-28-hiring-challenge-for-freshers)

**APLITUDE & PROGRAMMING LOGIC**

1. In a binary tree with 'n' nodes, each node has an associated weight. The weight of a node is defined as the sum of the weights of all nodes in its subtree, including itself. Which traversal technique is suitable for computing the weight of each node in the tree?
2. Pre order
3. Post order (your answer)
4. In order
5. Level Order

2. Which of the following are incorrect about the Fractional Knapsack Problem?

I) It can be solved using Dynamic Programming only.  
 II) Greedy works here.  
 III) Time complexity of the optimal solution is O(NLogN).  
 IV) The time complexity would be O(NLogN) given you use bubble sort for sorting.

* 1. I, IV (your answer)
  2. II, IV
  3. I,II,IV
  4. I,III

1. Consider a connected graph with 'n' nodes and 'n-1' edges. Each edge has a distinct weight. Which of the following statements is true about this graph?
2. It can be a tree
3. It must contain a Hamiltonian cycle
4. It must have a unique spanning tree (your answer)
5. It can have multiple minimum spanning tree
6. Smita rode her scooter Northwards, then turned left, and then again rode to her left for 4km. She found herself exactly 2km west of her starting point. How far did she ride Northward initially?

a. 2km (your answer)

b. 4km

c. 5km

d. More than 1 of the above

5. In the class of 130 students, a class test for two subjects physics and chemistry was conducted. (x+40) students passed in physics and (x+30). students passed in chemistry and no students failed in both subjects. If 60 students passed in both subject, then, what is the number of students passed in only physics?

1. 40 (your answer)
2. 20
3. 30
4. 50

**DSA**

Q1. [Minimum element in a sorted and rotated array | Practice | GeeksforGeeks](https://www.geeksforgeeks.org/problems/minimum-element-in-a-sorted-and-rotated-array3611/1)

Q2. [Time Needed to Buy Tickets - LeetCode](https://leetcode.com/problems/time-needed-to-buy-tickets/solutions/1576932/c-one-pass/?envType=daily-question&envId=2024-04-09)

Q3. [Intersection Point in Y Shaped Linked Lists | Practice | GeeksforGeeks](https://www.geeksforgeeks.org/problems/intersection-point-in-y-shapped-linked-lists/1)

**React Coding**

Q1. Create two components: Login and Profile. The Login component takes the user's name and password, and when the details are submitted, the Profile component displays the user's name and password on the screen by taking context.

Q2. You are given a card. Your task is to create a button that changes its theme from light to dark.

**React Theory**

[Source](https://climbtheladder.com/react-context-api-interview-questions/)

Q1. Explain provider and consumer in Context API?

Q2. How many consumers can be connected to a single provider?

Q3. What problems can arise if an application uses too many providers?

Q4. What happens if I declare multiple components that need access to the same context?

Q5. What are the various ways by which a component can access data stored in context?

Q6. Can you give me some examples where it would be better to use a context than global variables or props?