1. What is memoization?   1 / 1 point

   ◉ It is a process of retaining the results from a computation so that they can be reused rather than
   recalculating a result.

   ○ It is an example of divide and conquer.

   ○ It is a practice of only computing what is in the cache in place of expensive memory calls.

   ✓ **Correct**
   That's correct! It is the practice of retaining results to speed up subsequent computations.

2. The practice of breaking a problem into a set of overlapping subproblems is referred to as: 1 / 1 point

   ○ Memoization

   ○ Divide and conquer

   ◉ Dynamic programming

   ✓ **Correct**
   That's correct. This is a practice that employs a divide and conquer approach to breaking
   problems down. When an overlapping pattern has been identified, this approach further utilizes
   memoization to compute solutions more quickly.

3. Quicksort is an example of divide and conquer?   1 / 1 point

   ◉ True

   ○ False

   ✓ **Correct**
   That's correct. The array is repeatedly broken into smaller components until the data is sorted.

4. Examine the following problem: 1 / 1 point

   A bank robber has entered a bank vault and sees 3 stacks of precious bars: Gold, silver and platinum. The
   gold weighs 6kg and is valued at 60 dollars. The silver weighs 1 kg and is valued at 5 dollars. And the

platinum weighs 10kg and is valued at 110 dollars. The robber can only carry 38kg. What is the optimal combination of items to take? Your solution is to fill the bag with as many platinum bars as possible before moving to the gold and then the silver. What type of approach best describes this solution?

○ Graph approach

◉ Greedy approach

○ Dynamic programming

✓ **Correct**
That's correct. This approach involves taking the immediate item with the highest value regardless of any other factors.

---

5. Why is a base case crucial when designing recursive solutions?   1 / 1 point

○ The algorithm needs to know the shape of the minimum case so it can model the solution from it.

◉ Without it the function would go on forever.

○ It is used to ensure that the input diminishes at each call.

✓ **Correct**
That's correct. The base case is the termination condition that ends the iterative nature of the function.