1. What is the divide and conquer strategy?

Divide and conquer is nothing but dividing the larger problems into smaller problems which are solvable in a simple manner and repeating the smaller instance recursively up to getting the result of larger problem.

2. What is binary search and how does it work?

Binary search is the easiest way for searching the element. Taking the middle element of the array and compare with the search element if search element is less than middle element then take left array and do the same operation until all the elements in the array are searched. If it found return 1 otherwise return 0

If search element is greater than the middle element then take the right array and do the same operation until all elements in the array are searched. If it found return 1 otherwise return 0

3. Explain the distinction between a list and a tuple?

List	Tuple

• Mutable • Easy for operations • List is mentioned within [] • Require more memory • Takes more time for iterations	• Immutable • Somewhat hard to operate than list • Tuple is mentioned within () • Comparatively less memory than lists • Comparatively less time for iterations

4. Can you explain how python manages memory?

Memory allocation is defined as allocating a block of space in a computer memory to a program. There are two types of memory allocation

- **Static memory allocation**
- **Dynamic memory allocation**

Static memory allocation:

Static memory allocation is nothing but allocating the memory in the compile time. For example, if array is declared with static then the memory of that particular variable is allocate while compile time

Dynamic memory allocation:

Dynamic memory allocation is nothing but allocating the memory in the running time. Declaring the array with the unary operator allocate the memory while running the program

5. What is the difference between pickling and unpickling?

Pickling	Unpickling
• Converting the objects into byte streams • Accepts any python objects and converts into a string representation	• Converting the binary streams into objects • Process of retrieving orginal python from a string representation

6. What are the different types of search algorithms?

- Linear search
- Binary search
- Fibonacci search
- Exponential search
- Jump search
- Interpolation search
- Sub list search