1. Write an algorithm for finding the numerical data from the database using linear search and binary search techniques. Assume the database is the list of 14 elements. Count the number of operations initiated by the algorithms for best case, worst case and average case time complexity. Similarly, compare the space complexity of both algorithms.

2. Read the computer architecture and operating system basics from any book. Give one page short notes on computer time complexity and computer space complexity.

3. State the conditions of different asymptotic notations for representing time complexities. Analyze the time complexity boundaries for the following functions.

$$f^1(x) = 4n$$

$$f^2(x) = 2n^2 + 4$$

Set your own boundary conditions (choose any $c.g(n)$). Check the possibilities for $Big\ O\ and\ Small\ o$ complexities.

4. Get any four programs from online resources. Analyze the complexity levels with proper explanations.

5. What did understand about data structures and the types? Give your observations.

Note: Need handwritten documents. Single pdf only. Give your register number as file name. Images not allowed. Kindly do not copy others.