1. Activity
   1. O(n2)
   2. O(n)
   3. O(n2)
   4. O(n)
2. A.
   1. {0, 1, 2, 3, 3, 3, 3, 7}
   2. {0,1,2,3,3,4,5,6}
3. Answer
   1. O(n) , T(n) = n + 4
   2. O(n3) , T(n) = n3 + 4
   3. O(n) , T(n) = 3n + 4
   4. O(n), T(n) = n + 3
4. Answer

| Algorithm | Complexity |
| --- | --- |
| Linear search | O(1) |
| Sequential search | O(n) |
| Binary search | O(logn) |
| QuickSort | O(n\*logn) |

1. Answer
   1. Abstract data type is a data type is class thats defined their behaviour based on how the user manipulate the data type:  
      Example:
      1. Pop
      2. Queue
      3. Push

| ArrayList | ArrayList is the implementation of list in java |
| --- | --- |
| List | Interface in java that is based on an ordered manner |

1. In the ArrayListDS.java File