Open Book Test with Oral Viva

1. Given a doubly linked list, write an algorithm to swap the kth node from the beginning of this list with the kth node from the end of the same list. The nodes have to be swapped and not their contents.

2. Write a recursive function to find the sum of the elements of an array.

3. Consider the following array of integers:
   12, 14, 9, 18, 120, 30, 40, 35, 60
   Which sorting algorithm will be best suited to sort this array? Use this algorithm to sort it and show the contents of the array after every step.

4. Consider the intermediate configurations of an array being sorted. Which sorting algorithm is being used in each case? Justify your answer.
   (i) (4, 5, 8, 1) (1, 5, 8, 4) (1, 4, 8, 5) (1, 4, 5, 8)
   (ii) (4, 5, 8, 1) (4, 5, 1, 8) (4, 1, 5, 8) (1, 4 5, 8)

5. Given a single linked list of characters, write a function to check whether this list is a palindrome or not. You may use any one additional data structure.

6. **Attempt all questions of OBE paper December 2020** (Keep on attempting related questions as and when we cover a topic in class)