RCCF23058
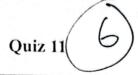
Q1. MCQ'S

i. What is the primary advantage of Count Sort compared to comparison-based sorting algorithms like Quick Sort and Merge Sort?

A) It is a stable sorting algorithm. ✓
B) It can sort in O(nlogn)) time.
C) It sorts integers in linear time O(n) when the range of input values is limited. ✓
D) It can sort in-place without additional memory.

ii. Count Sort is most effective when:

A) The input consists of a large number of unique elements.
B) The input consists of floating-point numbers.
C) The input values are within a known, small range. ✓
D) The input consists of negative numbers only.

iii. Which of the following is a limitation of Count Sort?

A) It is not stable.
B) It cannot handle negative integers. ✓
C) It requires additional space proportional to the range of the input values.
D) It is slower than Quick Sort.

Sort the following array by using Count sort. Explain and highlight the changes in each step.

4	2	2	2	9	3	3	1	1

b) What is the time complexity of Count sort. main.

find Man up Make array with the range.

(a)

Array Additional for count

4   2   2   2   (9)   3   3   1   1

0	1	2	3	4	5	6	7	8	9
0	0	0	0	1	0	0	0	0	0

0	1	2	3	4	5	6	7	8	9
0	2	1	0	0	0	0	0	0	0

0	0	2	0	1	0	0	0	0	0

0	0	3	0	1	0.	0.	0	0	0

0	1	2	3	4	5	6	7	8	9
0	0.	3	0	1	0	0	0	0	1

0	0	3	1	1	0	0	0	0	1

0	1	2	3	4	5	6	7	8	9
0	0	3	2	1	0	0	0	0.	1.