Department of Computer Science and Engineering,
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CS23302 – Data Structures and Algorithms
Practical
July – November 2026
Year/Sem/Batch : II/III/ N

Exercise: 13	Sorting and Hashing	16.10.2026

Spot (5 Marks)

1. Insert 15, 11, 27, 8, 12 into a hash table of size 7 using h(k) = k mod 7 and linear probing. Write the final table. How many probes are needed to search for 12 (present) and for 22 (absent)?
2. Two Sum: write a C program that finds the indices of the two numbers in an array whose sum equals a given target, in O(n) time. Implement a simple hash table (chaining or open addressing) – do not use nested loops.

Input:	`2 7 11 15,  target = 9`
Expected output:	`0 1`
Input:	`3 2 4,  target = 6`
Expected output:	`1 2`
Input:	`3 3,  target = 6`
Expected output:	`0 1`

3. What is the output of the following code fragment? Then modify the second loop so that the program prints all the elements of a[] in sorted order (counting sort).

```
int a[] = {3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5};
int count[10] = {0}, i, n = 11;
for (i = 0; i < n; i++)
    count[a[i] % 10]++;
for (i = 0; i < 10; i++)
    if (count[i] > 1)
        printf("%d ", i);
```