

# Rajalakshmi Engineering College

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 7\_MCQ\_Updated

Attempt : 1  
Total Mark : 20  
Marks Obtained : 17

#### Section 1 : MCQ

1. In C, how do you calculate the mid-square hash index for a key k, assuming we extract two middle digits and the table size is 100?

**Answer**

$((k * k) / 100) \% 100$

**Status : Correct**

**Marks : 1/1**

2. Which of the following values of 'm' is recommended for the division method in hashing?

**Answer**

A prime number

**Status : Correct**

**Marks : 1/1**

3. What is the worst-case time complexity for inserting an element in a hash table with linear probing?

**Answer**

$O(n)$

**Status :** Correct

**Marks :** 1/1

4. Which data structure is primarily used in linear probing?

**Answer**

Array

**Status :** Correct

**Marks :** 1/1

5. Which situation causes clustering in linear probing?

**Answer**

Sequential key insertion

**Status :** Wrong

**Marks :** 0/1

6. What is the primary disadvantage of linear probing?

**Answer**

Clustering

**Status :** Correct

**Marks :** 1/1

7. What is the initial position for a key  $k$  in a linear probing hash table?

**Answer**

$k \% \text{table\_size}$

**Status :** Correct

**Marks :** 1/1

8. In linear probing, if a collision occurs at index  $i$ , what is the next index checked?

**Answer**

$(i + 1) \% \text{table\_size}$

**Status : Correct**

**Marks : 1/1**

9. Which of these hashing methods may result in more uniform distribution with small keys?

**Answer**

Mid-Square

**Status : Correct**

**Marks : 1/1**

10. What would be the result of folding 123456 into three parts and summing:  $(12 + 34 + 56)$ ?

**Answer**

102

**Status : Correct**

**Marks : 1/1**

11. What happens if we do not use modular arithmetic in linear probing?

**Answer**

Index goes out of bounds

**Status : Correct**

**Marks : 1/1**

12. Which C statement is correct for finding the next index in linear probing?

**Answer**

$\text{index} = (\text{index} + 1) \% \text{size};$

**Status :** Correct

**Marks :** 1/1

13. Which folding method divides the key into equal parts, reverses some of them, and then adds all parts?

**Answer**

Folding boundary method

**Status :** Wrong

**Marks :** 0/1

14. What is the output of the mid-square method for a key  $k = 123$  if the hash table size is 10 and you extract the middle two digits of  $k * k$ ?

**Answer**

2

**Status :** Wrong

**Marks :** 0/1

15. Which of the following best describes linear probing in hashing?

**Answer**

Resolving collisions by linearly searching for the next free slot

**Status :** Correct

**Marks :** 1/1

16. What does a deleted slot in linear probing typically contain?

**Answer**

A special "deleted" marker

**Status :** Correct

**Marks :** 1/1

17. In division method, if key = 125 and  $m = 13$ , what is the hash index?

**Answer**

8

**Status :** Correct

**Marks :** 1/1

18. In the folding method, what is the primary reason for reversing alternate parts before addition?

**Answer**

To reduce the chance of collisions caused by similar digit patterns

**Status :** Correct

**Marks :** 1/1

19. Which of the following statements is TRUE regarding the folding method?

**Answer**

It divides the key into parts and adds them.

**Status :** Correct

**Marks :** 1/1

20. In the division method of hashing, the hash function is typically written as:

**Answer**

$h(k) = k \% m$

**Status :** Correct

**Marks :** 1/1