

# 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 : 19

### Section 1 : MCQ

1. 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**

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

**Answer**

Array

**Status : Correct**

**Marks : 1/1**

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

**Answer**

A prime number

**Status :** Correct

**Marks :** 1/1

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

**Answer**

Folding reversal method

**Status :** Correct

**Marks :** 1/1

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

**Answer**

$h(k) = k \% m$

**Status :** Correct

**Marks :** 1/1

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

**Answer**

Index goes out of bounds

**Status :** Correct

**Marks :** 1/1

7. 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

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

Answer

8

Status : Correct

Marks : 1/1

9. 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

1

Status : Correct

Marks : 1/1

10. 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

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

Answer

index = (index + 1) % size;

Status : Correct

Marks : 1/1

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

Answer

k % table\_size

**Status :** Correct

**Marks :** 1/1

13. Which situation causes clustering in linear probing?

**Answer**

Sequential key insertion

**Status :** Wrong

**Marks :** 0/1

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

**Answer**

A special "deleted" marker

**Status :** Correct

**Marks :** 1/1

15. 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

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

**Answer**

Mid-Square

**Status :** Correct

**Marks :** 1/1

17. What is the primary disadvantage of linear probing?

**Answer**

Clustering

**Status :** Correct

**Marks :** 1/1

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

**Answer**

102

**Status :** Correct

**Marks :** 1/1

19. 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

20. 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