

◆ 1. What is the use of header files in C/C++?

Answer:

Header files contain **declarations of functions and macros**. They are included using `#include`, so we can use functions like `printf()` or `malloc()`.

✓ Example:

```
#include <stdio.h> // for printf, scanf
#include <stdlib.h> // for malloc, free
```

◆ 2. Which data structures allow both enqueue and dequeue operations from both ends?

Answer:

This is done using **Deque (Double-Ended Queue)**.

Deque allows:

- **Insertion** (enqueue) at **front and rear**
- **Deletion** (dequeue) from **front and rear**

Other data structures:

- **Stack** → LIFO (Last In First Out)
 - **Queue** → FIFO (First In First Out)
 - **Linked List** → Dynamic memory, used in implementing others
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◆ 3. What is the answer to: "Half of 2 + 2"?

Answer:

Half of 2 = 1

1 + 2 = 3

⚠ This is a trick question, tests **logical thinking**.

◆ 4. What operations can be performed on a database?

Answer:

The common database operations are called **CRUD**:

- **C** – Create (Insert data)
- **R** – Read (Select or Retrieve data)
- **U** – Update (Modify data)
- **D** – Delete (Remove data)

✓ Example SQL:

```
SELECT * FROM users;  
INSERT INTO users (name) VALUES ('Amit');
```

◆ 5. What is the testing done by developers?

Answer:

Alpha Testing

- Done by **developers or internal testers**
- Checks basic functionality before releasing to users

Additional Relevant Interview Questions

◆ Programming & DSA

1. **What is the difference between array and linked list?**
→ Array is fixed size, contiguous; linked list is dynamic and scattered in memory.

2. **Implement a stack using array or linked list.**
 3. **Difference between stack and queue?**
 - Stack → LIFO
 - Queue → FIFO
 4. **What is recursion? Give an example.**
 5. **Write a function to reverse a string using recursion.**
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Database Questions

1. **What is a Primary Key and Foreign Key?**
 2. **Write a query to find students who scored above 80.**
 3. **What is normalization in DBMS?**
 4. **Difference between INNER JOIN and LEFT JOIN.**
 5. **What is indexing in databases?**
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Software Testing Questions

1. **What is black-box testing?**
 - Testing without knowing internal code.
2. **What is white-box testing?**
 - Testing with knowledge of internal code.
3. **What is gray-box testing?**
 - Combination of black and white box testing.
4. **Difference between alpha and beta testing?**
5. **What is unit testing?**

◆ Logical & Puzzle Questions

1. If a lily pad doubles each day and fills a lake in 48 days, when was it half-filled?
→ Day 47
2. What will be the output of: $9 - 3 / 3 + 1$?
→ $9 - 1 + 1 = 9$
3. How many triangles in this pattern?
→ [Prepare from image-based questions]