AMD SDE Internship Interview Questions – Full Topic■Wise Guide

Based on AMD Internship Interviews (2022–2025) | With Hints

1. Data Structures & Algorithms (2022–2025)

- Arrays: Find maximum subarray sum (Kadane) — Hint: Track running & global max.
- Arrays: Rotate array by K positions — Hint: Reverse technique.
- Arrays: Move zeros to end — Hint: Two pointer approach.
- Arrays: Find duplicate number — Hint: Floyd cycle detection.
- Strings: Longest common prefix — Hint: Horizontal scanning.
- Strings: Valid palindrome — Hint: Two pointers.
- Strings: Check anagram — Hint: Frequency hash.
- Strings: Longest substring without repeating characters — Hint: Sliding window.
- Linked List: Reverse linked list — Hint: Iterative pointer swap.
- Linked List: Detect cycle — Hint: Slow & fast pointers.
- Linked List: Merge two sorted lists — Hint: Dummy node.
- Stack: Valid parentheses — Hint: Push opening, pop matching.
- Stack: Next greater element — Hint: Monotonic stack.
- Queue: Sliding window maximum — Hint: Deque.
- Binary Tree: Inorder/Preorder/Postorder traversal — Hint: Recursion.
- Binary Tree: Height & diameter — Hint: DFS.
- Binary Tree: Lowest Common Ancestor — Hint: Recursive return logic.
- BST: Validate BST — Hint: Min/Max range.
- Graph: BFS & DFS — Hint: Queue vs recursion.
- Graph: Cycle detection — Hint: Visited + recursion stack.
- Graph: Shortest path (unweighted) — Hint: BFS.
- DP: Fibonacci / Climbing stairs — Hint: Memoization.
- DP: Longest increasing subsequence — Hint: Binary search DP.
- DP: Coin change — Hint: Bottom■up DP.
- Bit Manipulation: Check power of two — Hint: n & (n–1).

2. Operating Systems (2023–2025)

- Process vs Thread — Hint: Memory & isolation.
- Context switching — Hint: CPU state change.
- CPU scheduling algorithms — Hint: FCFS, SJF, RR.
- Deadlock conditions — Hint: Coffman conditions.
- Deadlock prevention & avoidance — Hint: Resource ordering.
- Paging vs segmentation — Hint: Fixed vs logical blocks.
- Page replacement algorithms — Hint: FIFO, LRU.
- Virtual memory — Hint: Disk as extension of RAM.
- Thrashing — Hint: Excessive paging.
- Semaphore vs Mutex — Hint: Ownership difference.
- Race condition — Hint: Unsynchronized access.
- Critical section problem — Hint: Mutual exclusion.

3. DBMS & SQL (2023–2025)

- What is DBMS? — Hint: Data management system.
- Normalization (1NF–3NF) — Hint: Reduce redundancy.
- Primary key vs Foreign key — Hint: Uniqueness vs relation.
- Indexes — Hint: Faster read, slower write.
- Clustered vs non■clustered index — Hint: Physical order.
- ACID properties — Hint: Transaction reliability.
- JOIN types — Hint: Inner, Left, Right.
- Write SQL for 2nd highest salary — Hint: Subquery.
- Difference between DELETE, TRUNCATE, DROP — Hint: Logging & rollback.
- What is transaction? — Hint: Logical unit of work.

4. Computer Networks (2023–2025)

- OSI vs TCP/IP model — Hint: Layered design.
- TCP vs UDP — Hint: Reliability.
- TCP 3■way handshake — Hint: SYN, SYN■ACK, ACK.
- Flow control vs congestion control — Hint: Sender vs network.
- HTTP vs HTTPS — Hint: TLS encryption.
- What is DNS? — Hint: Domain to IP.
- What is latency, bandwidth, throughput — Hint: Performance metrics.
- What happens when you type a URL — Hint: DNS → HTTP → Response.
- What is firewall — Hint: Network security.
- Cookies vs sessions — Hint: Client vs server.

5. OOP & Programming (2022–2025)

- OOP pillars — Hint: E I P A.
- Abstraction vs Encapsulation — Hint: Hide details vs data.
- Inheritance — Hint: Code reuse.
- Polymorphism — Hint: Many forms.
- Overloading vs overriding — Hint: Compile vs runtime.
- Virtual functions (C++) — Hint: Dynamic binding.
- Garbage collection — Hint: Automatic memory management.
- Shallow vs deep copy — Hint: Reference vs duplication.
- Exception handling — Hint: Try■catch■finally.
- Const keyword — Hint: Immutability.

6. Projects & Behavioral (All Years)

- Explain your main project — Hint: Problem → Solution → Result.
- Biggest technical challenge faced — Hint: Learning outcome.
- How do you debug issues? — Hint: Logs & isolation.
- Time you failed — Hint: Accountability.
- Team conflict experience — Hint: Communication.
- How do you handle deadlines? — Hint: Prioritization.
- Why AMD? — Hint: Products + culture.
- Future goals — Hint: Align with role.