**✅ 15 Basic Level Questions**

1. **Which of the following is a volatile memory?**  
   A. ROM  
   B. Hard Disk  
   C. RAM ✅  
   D. DVD
2. **What is the full form of OOP?**  
   A. Object Overloading Programming  
   B. Object-Oriented Programming ✅  
   C. Optional-Oriented Programming  
   D. Object-Oriented Process
3. **Which data structure uses LIFO?**  
   A. Queue  
   B. Array  
   C. Stack ✅  
   D. Linked List
4. **What does HTTP stand for?**  
   A. HyperText Transfer Protocol ✅  
   B. High Text Transfer Protocol  
   C. Hyper Terminal Transfer Program  
   D. Host Transfer Type Protocol
5. **Which protocol is used to send emails?**  
   A. SMTP ✅  
   B. FTP  
   C. SNMP  
   D. HTTP
6. **Which one is not a high-level language?**  
   A. Python  
   B. C++  
   C. Assembly ✅  
   D. Java
7. **Which of the following is not an Operating System?**  
   A. Linux  
   B. Windows  
   C. Oracle ✅  
   D. macOS
8. **Which of the following is a web browser?**  
   A. Yahoo  
   B. Google  
   C. Chrome ✅  
   D. Windows
9. **What is the primary key?**  
   A. A unique identifier for each record ✅  
   B. A type of foreign key  
   C. A default SQL keyword  
   D. A relational operator
10. **Which one is used to protect your system from unauthorized access?**  
    A. Antivirus  
    B. Firewall ✅  
    C. Compiler  
    D. Debugger
11. **Which is not a primitive data type in Java?**  
    A. int  
    B. char  
    C. boolean  
    D. String ✅
12. **Which component manages the execution of processes in an OS?**  
    A. Kernel ✅  
    B. Shell  
    C. BIOS  
    D. Compiler
13. **Which topology connects all devices to a single hub?**  
    A. Star ✅  
    B. Mesh  
    C. Bus  
    D. Ring
14. **Which database language is used to query data?**  
    A. HTML  
    B. DDL  
    C. DML  
    D. SQL ✅
15. **Which technology enables real-time web updates without refreshing?**  
    A. AJAX ✅  
    B. FTP  
    C. XML  
    D. DHCP

**✅ 15 Medium Level Questions**

1. **Which sorting algorithm has the best average-case performance?**  
   A. Bubble Sort  
   B. Selection Sort  
   C. Merge Sort ✅  
   D. Insertion Sort
2. **Which SQL clause is used for grouping rows with the same values?**  
   A. GROUP BY ✅  
   B. ORDER BY  
   C. WHERE  
   D. HAVING
3. **Which HTTP method is idempotent?**  
   A. POST  
   B. PUT ✅  
   C. PATCH  
   D. CONNECT
4. **Which feature of OOP allows same method name with different implementations?**  
   A. Abstraction  
   B. Inheritance  
   C. Polymorphism ✅  
   D. Encapsulation
5. **What type of memory is cache memory?**  
   A. Primary  
   B. Secondary  
   C. Static RAM ✅  
   D. Dynamic RAM
6. **Which algorithm is used for shortest path in a weighted graph?**  
   A. BFS  
   B. DFS  
   C. Dijkstra ✅  
   D. Kruskal
7. **Which RAID level offers mirroring?**  
   A. RAID 0  
   B. RAID 1 ✅  
   C. RAID 5  
   D. RAID 10
8. **Which HTML element is used for JavaScript code?**  
   A. <script> ✅  
   B. <style>  
   C. <js>  
   D. <code>
9. **Which of the following is not a network layer device?**  
   A. Switch  
   B. Router ✅  
   C. Bridge  
   D. Repeater
10. **What is the function of the Program Counter?**  
    A. Holds instructions  
    B. Stores the stack  
    C. Points to the next instruction ✅  
    D. Acts as a register for data
11. **What is a deadlock in OS?**  
    A. Process in infinite loop  
    B. Memory corruption  
    C. Multiple processes waiting for each other indefinitely ✅  
    D. CPU overload
12. **In software engineering, what does SDLC stand for?**  
    A. Software Design Level Code  
    B. Software Development Life Cycle ✅  
    C. Software Debugging Level Code  
    D. System Data Link Control
13. **Which of the following is an asymmetric encryption algorithm?**  
    A. AES  
    B. DES  
    C. RSA ✅  
    D. SHA-256
14. **Which of the following is an in-place sorting algorithm?**  
    A. Merge Sort  
    B. Quick Sort ✅  
    C. Counting Sort  
    D. Radix Sort
15. **Which type of transmission sends data one bit at a time?**  
    A. Serial ✅  
    B. Parallel  
    C. Hybrid  
    D. Modulated

**✅ 15 Complex Level Questions**

1. **What does ACID stand for in database systems?**  
   A. Access, Consistency, Isolation, Durability  
   B. Atomicity, Consistency, Isolation, Durability ✅  
   C. Access, Control, Integrity, Data  
   D. Association, Consistency, Integrity, Duration
2. **What is the purpose of foreign key in RDBMS?**  
   A. Establish relationship between tables ✅  
   B. Restrict access  
   C. Duplicate primary key  
   D. Store passwords securely
3. **Which data structure is used in recursion?**  
   A. Queue  
   B. Stack ✅  
   C. Array  
   D. Linked List
4. **Which layer in OSI model handles encryption?**  
   A. Session  
   B. Presentation ✅  
   C. Application  
   D. Transport
5. **In OOP, which of the following supports multiple inheritance?**  
   A. Java class  
   B. Java interface ✅  
   C. C# class  
   D. C++ class
6. **Which algorithm uses divide and conquer approach?**  
   A. BFS  
   B. Merge Sort ✅  
   C. Selection Sort  
   D. Linear Search
7. **Which normalization form removes transitive dependency?**  
   A. 1NF  
   B. 2NF  
   C. 3NF ✅  
   D. BCNF
8. **What is port scanning in cybersecurity?**  
   A. Transferring data over network  
   B. Monitoring internet speed  
   C. Probing open ports for vulnerabilities ✅  
   D. Installing firewall software
9. **Which HTML5 API allows offline storage?**  
   A. WebSQL  
   B. LocalStorage ✅  
   C. Cookies  
   D. SessionStorage
10. **What is the size of IPv6 address?**  
    A. 32-bit  
    B. 64-bit  
    C. 128-bit ✅  
    D. 256-bit
11. **Which of the following is NOT a hashing algorithm?**  
    A. MD5  
    B. SHA-256  
    C. RSA ✅  
    D. Whirlpool
12. **What does a compiler do?**  
    A. Executes code  
    B. Translates high-level code to machine code ✅  
    C. Edits code  
    D. Debugs logic errors
13. **Which component fetches, decodes, and executes instructions?**  
    A. Memory  
    B. Cache  
    C. ALU  
    D. CPU ✅
14. **What is a heuristic in algorithms?**  
    A. Exact solution  
    B. Approximate solution for faster processing ✅  
    C. Random guess  
    D. Memory management technique
15. **Which technique is used in agile software development?**  
    A. Waterfall  
    B. V-Model  
    C. Scrum ✅  
    D. Spiral

**✅ 15 Hard Level Questions**

1. **Which protocol secures web communication using encryption?**  
   A. HTTP  
   B. FTP  
   C. SSL/TLS ✅  
   D. SNMP
2. **What is the purpose of DNS?**  
   A. Encrypts data  
   B. Assigns MAC address  
   C. Resolves domain names to IP ✅  
   D. Stores browsing history
3. **Which technique is used to prevent SQL injection?**  
   A. Concatenation  
   B. Prepared Statements ✅  
   C. Inline queries  
   D. Joins
4. **What is pipelining in computer architecture?**  
   A. Cache storage technique  
   B. Simultaneous execution of multiple instructions ✅  
   C. Input/output management  
   D. Memory fragmentation
5. **What is pointer arithmetic used for?**  
   A. Managing databases  
   B. Memory navigation ✅  
   C. Web development  
   D. Security protocols
6. **Which OS scheduling algorithm is starvation-prone?**  
   A. Round Robin  
   B. First Come First Serve  
   C. Shortest Job Next ✅  
   D. Priority (Preemptive)
7. **Which cryptographic method is irreversible?**  
   A. Hashing ✅  
   B. Symmetric encryption  
   C. Asymmetric encryption  
   D. Compression
8. **What is the worst-case time complexity of Quick Sort?**  
   A. O(n log n)  
   B. O(n²) ✅  
   C. O(n)  
   D. O(log n)
9. **Which layer ensures reliable transmission?**  
   A. Network  
   B. Application  
   C. Transport ✅  
   D. Session
10. **What is containerization in DevOps?**  
    A. Virtual machines  
    B. Platform testing  
    C. Packaging software with dependencies ✅  
    D. Building APIs
11. **Which Java feature allows memory management automatically?**  
    A. Constructor  
    B. Garbage Collection ✅  
    C. Polymorphism  
    D. Exception Handling
12. **What is ARP used for?**  
    A. IP to MAC mapping ✅  
    B. MAC to IP mapping  
    C. Port management  
    D. Routing tables
13. **What’s the purpose of blockchain in cybersecurity?**  
    A. Antivirus replacement  
    B. Immutable transaction recording ✅  
    C. Key management  
    D. Password storage
14. **Which sorting algorithm is best for linked lists?**  
    A. Bubble Sort  
    B. Insertion Sort  
    C. Merge Sort ✅  
    D. Quick Sort
15. **What is the role of NIC in networking?**  
    A. Network Interface Card – enables device connectivity to a network ✅  
    B. Cable tester  
    C. Port scanner  
    D. IP router

**✅ 15 Mixed Level Questions**

1. OSI layer that handles routing? → **Network ✅**
2. Function of DHCP? → **Assigns IP dynamically ✅**
3. Function of abstraction in OOP? → **Hide implementation ✅**
4. Key feature of blockchain? → **Immutability ✅**
5. Threat model in cybersecurity? → **Defines potential attacks ✅**
6. TCP vs UDP? → **TCP is reliable ✅**
7. Function of JOIN in SQL? → **Combines data from tables ✅**
8. Advantage of linked list over array? → **Dynamic size ✅**
9. Use of CSS in web? → **Styling ✅**
10. CPU cache function? → **Stores frequently accessed data ✅**
11. DNS resolves? → **Domain to IP ✅**
12. Which data structure uses FIFO? → **Queue ✅**
13. What is SaaS? → **Software as a Service ✅**
14. UML used for? → **Software modeling ✅**
15. Role of REST in web? → **Design pattern for web APIs ✅**

### 🟢 **Basic Level (15 Questions)**

1. **Which device is used to convert digital signals to analog?**  
   A. Router  
   B. Modem ✅  
   C. Switch  
   D. Repeater
2. **Which of these is an open-source operating system?**  
   A. Windows  
   B. Linux ✅  
   C. macOS  
   D. DOS
3. **What uniquely identifies a device on a network?**  
   A. MAC Address ✅  
   B. URL  
   C. DNS  
   D. Gateway
4. **Which is not a web development language?**  
   A. PHP  
   B. HTML  
   C. CSS  
   D. SQL ✅
5. **What does phishing involve?**  
   A. Creating secure networks  
   B. Encrypting data  
   C. Fraudulent data collection ✅  
   D. Installing antivirus
6. **Command to remove a table in SQL?**  
   A. DELETE  
   B. ERASE  
   C. DROP ✅  
   D. REMOVE
7. **JVM stands for:**  
   A. Java Virtual Machine ✅  
   B. Java Verified Mode  
   C. Joint Virtual Model  
   D. Java Variable Memory
8. **Tool for version control:**  
   A. Git ✅  
   B. Docker  
   C. Java  
   D. HTML
9. **Which is not an SDLC model?**  
   A. Waterfall  
   B. Agile  
   C. V-Model  
   D. DevOps ✅
10. **Register holding address of next instruction:**  
    A. MAR  
    B. PC ✅  
    C. MDR  
    D. IR
11. **Binary search time complexity:**  
    A. O(n)  
    B. O(log n) ✅  
    C. O(n log n)  
    D. O(1)
12. **Interpreted language among the following:**  
    A. C  
    B. C++  
    C. Java  
    D. Python ✅
13. **Idempotent HTTP method:**  
    A. GET ✅  
    B. POST  
    C. CONNECT  
    D. PATCH
14. **Firewall works at which OSI layer?**  
    A. Physical  
    B. Data Link  
    C. Network ✅  
    D. Session
15. **NoSQL database:**  
    A. MySQL  
    B. PostgreSQL  
    C. MongoDB ✅  
    D. Oracle

### 🟡 **Medium Level (15 Questions)**

1. **Normalization avoids:**  
   A. Data retrieval  
   B. Data redundancy ✅  
   C. Indexing  
   D. Deadlock
2. **Encapsulation means:**  
   A. Hiding data ✅  
   B. Inheritance  
   C. Overloading  
   D. Compilation
3. **Which one is stateless?**  
   A. FTP  
   B. HTTP ✅  
   C. SMTP  
   D. SNMP
4. **Which one is NOT a type of Operating System?**  
   A. Real-Time  
   B. Time Sharing  
   C. Multi-threaded  
   D. Structured ✅
5. **Inheritance promotes:**  
   A. Code duplication  
   B. Code reusability ✅  
   C. Code hiding  
   D. Compilation
6. **Which sorting algorithm is fastest in average case?**  
   A. Bubble  
   B. Selection  
   C. Quick Sort ✅  
   D. Insertion
7. **Which of the following is a routing protocol?**  
   A. SMTP  
   B. OSPF ✅  
   C. DHCP  
   D. ARP
8. **Class in Java is:**  
   A. A function  
   B. An object  
   C. A blueprint ✅  
   D. A variable
9. **Deadlock can occur when:**  
   A. Resources are infinite  
   B. Resources are sharable  
   C. Circular wait happens ✅  
   D. Threads are idle
10. **What is SQL injection?**  
    A. A virus  
    B. An attack on SQL queries ✅  
    C. Syntax error  
    D. A database crash
11. **HTML is used to:**  
    A. Format hard disk  
    B. Design web pages ✅  
    C. Access database  
    D. Secure data
12. **The CPU performs:**  
    A. Storage  
    B. Input  
    C. Processing ✅  
    D. Output
13. **Which of the following uses TCP port 22?**  
    A. FTP  
    B. HTTP  
    C. SSH ✅  
    D. Telnet
14. **Which technique is used to reduce data collisions?**  
    A. MAC  
    B. CSMA/CD ✅  
    C. ARP  
    D. DNS
15. **Which one is a hybrid SDLC model?**  
    A. Waterfall  
    B. Agile-Waterfall ✅  
    C. Spiral  
    D. V-Model

### 🔵 **Complex Level (15 Questions)**

1. **Which scheduling algorithm avoids starvation?**  
   A. FCFS  
   B. SJF  
   C. Priority  
   D. Aging ✅
2. **Which layer is responsible for encryption?**  
   A. Physical  
   B. Data Link  
   C. Presentation ✅  
   D. Application
3. **Big-O of merge sort:**  
   A. O(n)  
   B. O(n log n) ✅  
   C. O(n²)  
   D. O(log n)
4. **In object-oriented design, cohesion should be:**  
   A. Low  
   B. Moderate  
   C. High ✅  
   D. Avoided
5. **Polymorphism allows:**  
   A. Single method to act differently ✅  
   B. Memory leak  
   C. Duplicate classes  
   D. Static objects
6. **Which command in Linux gives file permission?**  
   A. chmod ✅  
   B. ls  
   C. cp  
   D. mv
7. **A race condition occurs when:**  
   A. Variables are static  
   B. Threads share resources ✅  
   C. RAM is full  
   D. Disk fails
8. **Which SQL clause is used with GROUP BY?**  
   A. ORDER BY  
   B. HAVING ✅  
   C. LIMIT  
   D. EXISTS
9. **What is blockchain?**  
   A. Centralized ledger  
   B. Decentralized digital ledger ✅  
   C. Private network  
   D. Encrypted DBMS
10. **Which sorting is stable and efficient for large data?**  
    A. Merge Sort ✅  
    B. Selection Sort  
    C. Bubble Sort  
    D. Heap Sort
11. **Role of DNS:**  
    A. Encrypt data  
    B. Translate domain to IP ✅  
    C. Detect viruses  
    D. Firewall
12. **Which command connects remote machine?**  
    A. ssh ✅  
    B. ping  
    C. nslookup  
    D. tracert
13. **Which OS feature allows multitasking?**  
    A. Paging  
    B. Scheduling ✅  
    C. Caching  
    D. Defragmentation
14. **Which protocol provides reliability in data transfer?**  
    A. UDP  
    B. IP  
    C. TCP ✅  
    D. ICMP
15. **What is encapsulated in a TCP segment?**  
    A. Header and data ✅  
    B. Only data  
    C. Frame  
    D. Packet

### 🔴 **Hard Level (15 Questions)**

1. **Which algorithm is used in public key encryption?**  
   A. DES  
   B. RSA ✅  
   C. MD5  
   D. SHA
2. **Which OSI layer is responsible for session management?**  
   A. Session ✅  
   B. Transport  
   C. Network  
   D. Presentation
3. **B-tree is best used in:**  
   A. Sorting  
   B. Compilers  
   C. Databases ✅  
   D. Game logic
4. **How many bits are in an IPv6 address?**  
   A. 32  
   B. 64  
   C. 128 ✅  
   D. 256
5. **CAP Theorem does NOT include:**  
   A. Consistency  
   B. Availability  
   C. Partition Tolerance  
   D. Reliability ✅
6. **Docker is used for:**  
   A. Database design  
   B. Code formatting  
   C. Containerization ✅  
   D. Testing
7. **Which protocol secures web communication?**  
   A. HTTP  
   B. TCP  
   C. SSL/TLS ✅  
   D. FTP
8. **Which part of the CPU performs arithmetic operations?**  
   A. ALU ✅  
   B. CU  
   C. Register  
   D. Bus
9. **Which type of memory is fastest?**  
   A. RAM  
   B. SSD  
   C. Cache ✅  
   D. HDD
10. **Spanning Tree Protocol is used in:**  
    A. Routing  
    B. Switching ✅  
    C. Encryption  
    D. Firewall
11. **Which one is used for quantum computing?**  
    A. Qubits ✅  
    B. Registers  
    C. Threads  
    D. Tokens
12. **Technique used to break cipher algorithms:**  
    A. Brute force ✅  
    B. Debugging  
    C. Coding  
    D. Escaping
13. **In distributed systems, consistency is ensured by:**  
    A. Clock sync  
    B. Consensus algorithms ✅  
    C. Virtual machines  
    D. Firewalls
14. **Which OS is used in embedded systems?**  
    A. RTOS ✅  
    B. Linux  
    C. Windows  
    D. Unix
15. **Use of SHA-256:**  
    A. Encryption  
    B. Hashing ✅  
    C. Compression  
    D. Compilation

### 🟣 **Mixed Level (15 Questions)**

1. **Which is not an OOP principle?**  
   A. Inheritance  
   B. Polymorphism  
   C. Encapsulation  
   D. Compilation ✅
2. **Which key is used in DB to link tables?**  
   A. Unique Key  
   B. Foreign Key ✅  
   C. Primary Key  
   D. Index Key
3. **HTML is:**  
   A. Programming language  
   B. Markup language ✅  
   C. Script language  
   D. Query language
4. **Which one is a web server?**  
   A. Apache ✅  
   B. MySQL  
   C. Git  
   D. Maven
5. **Which keyword is used for inheritance in Java?**  
   A. implements  
   B. extends ✅  
   C. inherit  
   D. super
6. **Stack Overflow occurs when:**  
   A. Memory is full ✅  
   B. Disk crashes  
   C. Code is optimized  
   D. Variable is undeclared
7. **Deadlock prevention technique:**  
   A. Banker's algorithm ✅  
   B. Preemption  
   C. Virtualization  
   D. Paging
8. **Which language runs in browser?**  
   A. JavaScript ✅  
   B. Java  
   C. C++  
   D. Python
9. **Which layer compresses data in OSI model?**  
   A. Data link  
   B. Transport  
   C. Presentation ✅  
   D. Application
10. **Use of ICMP:**  
    A. DNS resolution  
    B. Error reporting ✅  
    C. Email sending  
    D. Routing
11. **Which algorithm is used in Dijkstra's?**  
    A. Greedy ✅  
    B. Dynamic  
    C. Backtracking  
    D. Brute force
12. **What does SSD stand for?**  
    A. Secure Software Device  
    B. Solid State Drive ✅  
    C. Soft Server Data  
    D. Static Storage Device
13. **Which protocol is faster but unreliable?**  
    A. TCP  
    B. UDP ✅  
    C. FTP  
    D. HTTP
14. **Java compiles to:**  
    A. Machine Code  
    B. Bytecode ✅  
    C. Assembly  
    D. Script
15. **Cloud model that provides only storage and compute:**  
    A. SaaS  
    B. PaaS  
    C. IaaS ✅  
    D. DaaS

### 🟢 **Basic Level (15 Questions)**

1. **Which of the following is an input device?**  
   A. Printer  
   B. Monitor  
   C. Keyboard ✅  
   D. Speaker
2. **Which unit performs calculations in a computer?**  
   A. Control Unit  
   B. Arithmetic Logic Unit ✅  
   C. Memory  
   D. Register
3. **Which is not a feature of OOPs?**  
   A. Inheritance  
   B. Encapsulation  
   C. Compilation ✅  
   D. Polymorphism
4. **A loop inside another loop is called:**  
   A. Continuous loop  
   B. Nested loop ✅  
   C. Infinite loop  
   D. Internal loop
5. **Which network device connects different networks?**  
   A. Switch  
   B. Hub  
   C. Router ✅  
   D. Repeater
6. **Which OS is developed by Microsoft?**  
   A. Linux  
   B. Unix  
   C. Windows ✅  
   D. MacOS
7. **Which command is used to view files in Linux?**  
   A. rm  
   B. ls ✅  
   C. mkdir  
   D. touch
8. **What is the default port of HTTP?**  
   A. 20  
   B. 21  
   C. 80 ✅  
   D. 443
9. **What is a virus in cybersecurity?**  
   A. Hardware fault  
   B. Malicious software ✅  
   C. Spam  
   D. Network error
10. **HTML stands for:**  
    A. Hyper Text Makeup Language  
    B. High Text Markup Language  
    C. HyperText Markup Language ✅  
    D. High Transfer Mark Language
11. **Which language is best suited for database interaction?**  
    A. HTML  
    B. CSS  
    C. SQL ✅  
    D. Python
12. **Which is a linear data structure?**  
    A. Tree  
    B. Graph  
    C. Stack ✅  
    D. Hash Table
13. **A bit is short for:**  
    A. Binary term  
    B. Binary digit ✅  
    C. Binary tree  
    D. Byte integer
14. **Which device stores data permanently?**  
    A. RAM  
    B. Cache  
    C. ROM ✅  
    D. Register
15. **Which one is a cloud storage provider?**  
    A. MS Word  
    B. Google Drive ✅  
    C. VLC  
    D. Excel

### 🟡 **Medium Level (15 Questions)**

1. **Which data structure uses FIFO principle?**  
   A. Stack  
   B. Queue ✅  
   C. Tree  
   D. HashMap
2. **Which HTTP method is used to update a resource?**  
   A. GET  
   B. PUT ✅  
   C. DELETE  
   D. PATCH
3. **Which of the following is not a type of cyberattack?**  
   A. Phishing  
   B. Ransomware  
   C. Firewall ✅  
   D. SQL Injection
4. **A class in OOP is a:**  
   A. Variable  
   B. Function  
   C. Blueprint for objects ✅  
   D. Data Type
5. **Primary key in a table is:**  
   A. Always null  
   B. May have duplicates  
   C. Unique and not null ✅  
   D. Can be repeated
6. **IPV4 address is of how many bits?**  
   A. 128  
   B. 64  
   C. 32 ✅  
   D. 16
7. **Which is not a loop structure in programming?**  
   A. for  
   B. while  
   C. repeat  
   D. switch ✅
8. **A process in OS is:**  
   A. A program in execution ✅  
   B. A command  
   C. A thread  
   D. An address
9. **Which one is a part of SDLC?**  
   A. Evaluation  
   B. Testing ✅  
   C. Upgrading  
   D. Defragmentation
10. **Which one is an example of asymmetric encryption?**  
    A. DES  
    B. AES  
    C. Blowfish  
    D. RSA ✅
11. **What is the time complexity of insertion sort (average)?**  
    A. O(log n)  
    B. O(n²) ✅  
    C. O(n log n)  
    D. O(n)
12. **Which protocol assigns IP addresses?**  
    A. DNS  
    B. DHCP ✅  
    C. FTP  
    D. TCP
13. **HTML elements are enclosed within:**  
    A. []  
    B. {}  
    C. <> ✅  
    D. ()
14. **Firewall is used for:**  
    A. Data storage  
    B. File transfer  
    C. Network security ✅  
    D. Internet speed
15. **Which memory is volatile?**  
    A. ROM  
    B. HDD  
    C. RAM ✅  
    D. SSD

### 🔵 **Complex Level (15 Questions)**

1. **Which data structure is used in recursion?**  
   A. Queue  
   B. Stack ✅  
   C. Tree  
   D. Array
2. **Which protocol is used for secured data transmission?**  
   A. HTTP  
   B. FTP  
   C. HTTPS ✅  
   D. TCP
3. **Which one is NOT a type of database?**  
   A. Relational  
   B. NoSQL  
   C. Hierarchical  
   D. Recursive ✅
4. **A semaphore is used to:**  
   A. Sort data  
   B. Allocate memory  
   C. Manage processes  
   D. Control access in concurrency ✅
5. **Which one is a design principle in OOP?**  
   A. Open/Closed Principle ✅  
   B. Divide & Multiply  
   C. Dijkstra’s Rule  
   D. Circular Queueing
6. **Which algorithm is used in routing?**  
   A. KMP  
   B. Bellman-Ford ✅  
   C. Quicksort  
   D. A\*
7. **Which command in SQL is used to grant privileges?**  
   A. ALLOW  
   B. PERMIT  
   C. GRANT ✅  
   D. SHARE
8. **What is the purpose of NAT in networking?**  
   A. Transfer files  
   B. Translate IP addresses ✅  
   C. Send emails  
   D. Resolve domains
9. **Which OS scheduling is most optimal but impractical?**  
   A. Round Robin  
   B. SJF  
   C. FCFS  
   D. Optimal ✅
10. **What is polymorphism in OOP?**  
    A. Many classes from one  
    B. One interface, many forms ✅  
    C. Object copying  
    D. Data hiding
11. **REST stands for:**  
    A. Remote Execution Service Type  
    B. Representational State Transfer ✅  
    C. Random Environment Storage Transfer  
    D. Route Entry Secure Tunnel
12. **Which type of join returns common records?**  
    A. INNER JOIN ✅  
    B. LEFT JOIN  
    C. RIGHT JOIN  
    D. FULL JOIN
13. **What is a buffer overflow?**  
    A. Virus  
    B. Exceeding storage size ✅  
    C. Firewall block  
    D. Disk corruption
14. **Which component interprets instructions in CPU?**  
    A. ALU  
    B. Register  
    C. Control Unit ✅  
    D. RAM
15. **Which protocol is used in Ping command?**  
    A. TCP  
    B. IP  
    C. ICMP ✅  
    D. UDP

### 🔴 **Hard Level (15 Questions)**

1. **What is used in proof-of-work blockchain consensus?**  
   A. Hash puzzles ✅  
   B. Smart contracts  
   C. Shared databases  
   D. IP masking
2. **Which hash function is considered most secure today?**  
   A. MD5  
   B. SHA-1  
   C. SHA-256 ✅  
   D. AES
3. **Which is not a cyberattack type?**  
   A. Man-in-the-middle  
   B. DDoS  
   C. Buffering ✅  
   D. Spoofing
4. **Deadlock avoidance algorithm:**  
   A. Shortest Job First  
   B. LRU  
   C. Banker's Algorithm ✅  
   D. SSTF
5. **What is page replacement in OS?**  
   A. Replacing disk sectors  
   B. Switching processes  
   C. Replacing memory pages ✅  
   D. Allocating memory
6. **Which one uses artificial neurons?**  
   A. Machine Learning ✅  
   B. Data Structures  
   C. SQL Queries  
   D. Routing Protocols
7. **Which component stores BIOS?**  
   A. RAM  
   B. ROM ✅  
   C. CPU  
   D. Cache
8. **In cloud, SaaS stands for:**  
   A. Software as a Service ✅  
   B. Software as a Solution  
   C. Server as a System  
   D. Storage as a Service
9. **DFS uses which data structure?**  
   A. Queue  
   B. Stack ✅  
   C. Heap  
   D. Array
10. **What is salting in password protection?**  
    A. Decryption  
    B. Adding random data to hashes ✅  
    C. Encrypting passwords  
    D. Formatting passwords
11. **Which is a symmetric encryption algorithm?**  
    A. RSA  
    B. AES ✅  
    C. ECC  
    D. SHA
12. **Which is used in AI for decision-making?**  
    A. Stack  
    B. Queue  
    C. Decision Tree ✅  
    D. Map
13. **Which device is layer 2 and 3 in OSI?**  
    A. Router  
    B. Switch (Layer 3) ✅  
    C. Hub  
    D. Bridge
14. **Which one is not a DBMS component?**  
    A. Query Processor  
    B. Compiler ✅  
    C. Storage Manager  
    D. Transaction Manager
15. **IPv6 is written in:**  
    A. Decimal  
    B. Binary  
    C. Hexadecimal ✅  
    D. Octal

### 🟣 **Mixed Level (15 Questions)**

1. **What is a compiler?**  
   A. Converts source code to object code ✅  
   B. Executes program line by line  
   C. Compresses files  
   D. Decrypts software
2. **Thread is a:**  
   A. Lightweight process ✅  
   B. OS  
   C. Function  
   D. Variable
3. **CSS is used for:**  
   A. Structuring  
   B. Styling ✅  
   C. Scripting  
   D. Database
4. **OSI model has how many layers?**  
   A. 5  
   B. 6  
   C. 7 ✅  
   D. 8
5. **What is JSON?**  
   A. Protocol  
   B. Markup language  
   C. Data format ✅  
   D. Scripting
6. **Which operation causes anomaly without normalization?**  
   A. Delete ✅  
   B. Insert  
   C. Select  
   D. Sort
7. **Which cloud model allows full control of hardware?**  
   A. SaaS  
   B. PaaS  
   C. IaaS ✅  
   D. CaaS
8. **Heap is used in:**  
   A. DFS  
   B. BFS  
   C. Priority Queue ✅  
   D. Stack
9. **Which operation is used in hashing?**  
   A. Modulus ✅  
   B. Divide  
   C. Multiply  
   D. Subtract
10. **Which one is NOT a Linux command?**  
    A. ls  
    B. pwd  
    C. cd  
    D. dir ✅
11. **Which data structure is best for expression evaluation?**  
    A. Stack ✅  
    B. Tree  
    C. Queue  
    D. Graph
12. **What is RAID in storage?**  
    A. Encryption  
    B. Data recovery  
    C. Redundant Array of Independent Disks ✅  
    D. Security mode
13. **Which one is not an OS?**  
    A. Ubuntu  
    B. Fedora  
    C. Oracle ✅  
    D. CentOS
14. **Git is used for:**  
    A. Web hosting  
    B. Version control ✅  
    C. Database  
    D. Testing
15. **DML stands for:**  
    A. Data Mapping Language  
    B. Data Management Language  
    C. Data Manipulation Language ✅  
    D. Data Machine Logic

### 🟢 **Basic Level (15 Questions)**

1. **Which of the following is a non-volatile memory?**  
   A. RAM  
   B. Cache  
   C. ROM ✅  
   D. Register
2. **Which of these is an object-oriented language?**  
   A. COBOL  
   B. C  
   C. Java ✅  
   D. Assembly
3. **What does RAM stand for?**  
   A. Read Access Memory  
   B. Random Access Memory ✅  
   C. Real Access Machine  
   D. Run Access Memory
4. **Which data structure uses LIFO?**  
   A. Queue  
   B. Stack ✅  
   C. Array  
   D. Linked List
5. **What is the smallest unit of data in a computer?**  
   A. Byte  
   B. Nibble  
   C. Bit ✅  
   D. Word
6. **Which layer in OSI model is responsible for routing?**  
   A. Data Link  
   B. Transport  
   C. Network ✅  
   D. Session
7. **Which language is used to style web pages?**  
   A. HTML  
   B. XML  
   C. CSS ✅  
   D. SQL
8. **Firewall is used in:**  
   A. Operating Systems  
   B. Network Security ✅  
   C. Software Development  
   D. Web Hosting
9. **Which SQL command is used to retrieve data?**  
   A. FETCH  
   B. GET  
   C. RETRIEVE  
   D. SELECT ✅
10. **Which symbol is used for single-line comments in C++?**  
    A. /\* \*/  
    B. ##  
    C. // ✅  
    D. --
11. **The result of 2 + 3 \* 4 is:**  
    A. 20  
    B. 14 ✅  
    C. 10  
    D. 18
12. **Which of these is NOT a type of operating system?**  
    A. Batch  
    B. Real-time  
    C. Interactive  
    D. Translative ✅
13. **A group of 8 bits is called:**  
    A. Nibble  
    B. Byte ✅  
    C. Word  
    D. Line
14. **What does DBMS stand for?**  
    A. Digital Binary Management System  
    B. Database Management System ✅  
    C. Data Backup Monitoring Software  
    D. Digital Business Management Software
15. **Which protocol is used to transfer files?**  
    A. SMTP  
    B. FTP ✅  
    C. HTTP  
    D. SSH

### 🟡 **Medium Level (15 Questions)**

1. **Which of the following is an example of NoSQL DB?**  
   A. MySQL  
   B. Oracle  
   C. MongoDB ✅  
   D. PostgreSQL
2. **Encapsulation means:**  
   A. Binding code and data together ✅  
   B. Hiding methods  
   C. Inheritance  
   D. Making classes public
3. **Which of these is used in data link layer?**  
   A. IP  
   B. MAC address ✅  
   C. TCP  
   D. HTTP
4. **Which sort is best for nearly sorted data?**  
   A. Merge Sort  
   B. Insertion Sort ✅  
   C. Bubble Sort  
   D. Quick Sort
5. **In RDBMS, a table is also known as a:**  
   A. Field  
   B. Row  
   C. Relation ✅  
   D. Index
6. **What is a constructor in OOPs?**  
   A. Function to destroy an object  
   B. Function that returns nothing  
   C. Function that initializes an object ✅  
   D. Static method
7. **Which one is a markup language?**  
   A. Python  
   B. C++  
   C. HTML ✅  
   D. JavaScript
8. **Which of these is a loop construct?**  
   A. switch  
   B. break  
   C. for ✅  
   D. case
9. **Which of the following is NOT a relational operator in C++?**  
   A. ==  
   B. !=  
   C. += ✅  
   D. >=
10. **Which port is used by SSH?**  
    A. 21  
    B. 23  
    C. 22 ✅  
    D. 80
11. **Which normal form eliminates transitive dependency?**  
    A. 1NF  
    B. 2NF  
    C. 3NF ✅  
    D. BCNF
12. **In TCP/IP model, which layer corresponds to OSI's Application layer?**  
    A. Application ✅  
    B. Network  
    C. Transport  
    D. Internet
13. **What is SQL injection?**  
    A. Hardware bug  
    B. Web browser extension  
    C. Web attack to manipulate queries ✅  
    D. Database design technique
14. **Which of these is NOT a part of CPU?**  
    A. ALU  
    B. CU  
    C. RAM ✅  
    D. Registers
15. **Which protocol does DNS use?**  
    A. TCP  
    B. UDP ✅  
    C. HTTP  
    D. SMTP

### 🔵 **Complex Level (15 Questions)**

1. **Which traversal gives sorted output in BST?**  
   A. Preorder  
   B. Postorder  
   C. Inorder ✅  
   D. Level-order
2. **Which language is mostly used for AI applications?**  
   A. Perl  
   B. Ruby  
   C. Prolog ✅  
   D. Bash
3. **Which statement about polymorphism is true?**  
   A. It’s only possible in Java  
   B. Method overloading is static polymorphism ✅  
   C. Polymorphism is a type of constructor  
   D. It occurs only at runtime
4. **Which data structure is used in BFS traversal?**  
   A. Stack  
   B. Queue ✅  
   C. Tree  
   D. Hash Table
5. **In RAID 1, data is:**  
   A. Striped  
   B. Duplicated ✅  
   C. Split  
   D. Encoded
6. **Deadlock can be avoided using:**  
   A. LRU  
   B. Peterson's Algorithm  
   C. Banker's Algorithm ✅  
   D. SSTF
7. **What is the function of ARP protocol?**  
   A. Resolve IP to MAC ✅  
   B. Assign IP  
   C. Resolve hostname  
   D. Encrypt data
8. **Which technique is used to prevent SQL injection?**  
   A. Using triggers  
   B. Stored procedures  
   C. Parameterized queries ✅  
   D. JavaScript validation
9. **Which of the following is NOT a hashing algorithm?**  
   A. SHA  
   B. MD5  
   C. DES ✅  
   D. Whirlpool
10. **Which addressing mode is used in assembly?**  
    A. Immediate ✅  
    B. Indirect  
    C. Random  
    D. Sequenced
11. **Which Java keyword is used to inherit a class?**  
    A. implement  
    B. inherit  
    C. extends ✅  
    D. super
12. **What is the time complexity of binary search?**  
    A. O(n)  
    B. O(log n) ✅  
    C. O(n²)  
    D. O(1)
13. **Which key uniquely identifies a record in a table?**  
    A. Foreign key  
    B. Alternate key  
    C. Primary key ✅  
    D. Composite key
14. **Which OS is open source and widely used in servers?**  
    A. Windows  
    B. Linux ✅  
    C. macOS  
    D. Solaris
15. **Which cyberattack intercepts communication?**  
    A. Phishing  
    B. DDoS  
    C. Man-in-the-middle ✅  
    D. Malware

### 🔴 **Hard Level (15 Questions)**

1. **What is the best case time complexity of QuickSort?**  
   A. O(n log n) ✅  
   B. O(n²)  
   C. O(log n)  
   D. O(n)
2. **Blockchain ensures integrity using:**  
   A. Symmetric keys  
   B. Checkpoints  
   C. Cryptographic hash ✅  
   D. TCP/IP
3. **Which of these is a graph traversal algorithm?**  
   A. Dijkstra ✅  
   B. Merge Sort  
   C. SJF  
   D. Binary Search
4. **What is the full form of XSS in cyber security?**  
   A. External Session Stealing  
   B. Cross Site Scripting ✅  
   C. XML Structured Script  
   D. X-Level Security
5. **Which one is not part of Agile?**  
   A. Scrum  
   B. Waterfall ✅  
   C. Kanban  
   D. XP
6. **Which system call is used to create a process in Unix?**  
   A. fork() ✅  
   B. exec()  
   C. run()  
   D. call()
7. **What is the output of sizeof(char) in C?**  
   A. 2  
   B. 4  
   C. 1 ✅  
   D. 8
8. **A B+ tree is optimized for:**  
   A. RAM  
   B. Disk Access ✅  
   C. Heap Storage  
   D. Encryption
9. **AES is a type of:**  
   A. Asymmetric encryption  
   B. Symmetric encryption ✅  
   C. Hashing  
   D. Steganography
10. **Which CPU scheduling algorithm may cause starvation?**  
    A. FCFS  
    B. Round Robin  
    C. SJF ✅  
    D. Multilevel Queue
11. **Which tag is used to create a link in HTML?**  
    A. <link>  
    B. <url>  
    C. <a> ✅  
    D. <href>
12. **Which is not a component of CPU?**  
    A. ALU  
    B. CU  
    C. RAM ✅  
    D. Registers
13. **Which protocol does HTTPS use underneath?**  
    A. FTP  
    B. SSL/TLS ✅  
    C. SSH  
    D. DNS
14. **In Big O notation, what is O(1)?**  
    A. Constant time ✅  
    B. Linear  
    C. Logarithmic  
    D. Exponential
15. **Which database uses documents instead of tables?**  
    A. MySQL  
    B. PostgreSQL  
    C. MongoDB ✅  
    D. Oracle

### 🟣 **Mixed Level (15 Questions)**

1. **Which is a valid variable name in Java?**  
   A. 1name  
   B. name\_1 ✅  
   C. name-1  
   D. class
2. **Which web protocol is stateless?**  
   A. FTP  
   B. HTTP ✅  
   C. SSH  
   D. TCP
3. **Stack follows which order?**  
   A. FIFO  
   B. FILO ✅  
   C. LILO  
   D. LILO
4. **DNS resolves:**  
   A. Port to IP  
   B. MAC to IP  
   C. Hostname to IP ✅  
   D. Domain to URL
5. **Which protocol is used for email sending?**  
   A. POP3  
   B. IMAP  
   C. SMTP ✅  
   D. FTP
6. **Which is not an access modifier in Java?**  
   A. private  
   B. protected  
   C. secure ✅  
   D. public
7. **Which HTTP method deletes data?**  
   A. GET  
   B. DELETE ✅  
   C. POST  
   D. PUT
8. **Which topology is most fault tolerant?**  
   A. Bus  
   B. Star  
   C. Mesh ✅  
   D. Ring
9. **Which is a valid SQL constraint?**  
   A. WHERE  
   B. GROUP  
   C. UNIQUE ✅  
   D. FROM
10. **Linux is based on:**  
    A. Windows  
    B. Mac  
    C. Unix ✅  
    D. OS/2
11. **Cookies are used to:**  
    A. Secure connection  
    B. Authenticate server  
    C. Store client data ✅  
    D. Encrypt traffic
12. **Which of the following is open-source software?**  
    A. MS Office  
    B. Adobe Acrobat  
    C. LibreOffice ✅  
    D. Norton Antivirus
13. **What is the default port for MySQL?**  
    A. 3306 ✅  
    B. 1521  
    C. 5432  
    D. 8080
14. **Which tool is used for version control?**  
    A. Maven  
    B. Git ✅  
    C. Eclipse  
    D. Jenkins
15. **What does MVC stand for in web development?**  
    A. Model View Controller ✅  
    B. Main View Control  
    C. Module Version Code  
    D. Monitor Virtual Command

### 🟢 **Basic Level (15 Questions)**

1. **Which part of the computer performs arithmetic operations?**  
   A. RAM  
   B. ALU ✅  
   C. CU  
   D. ROM
2. **OOP concept that allows using the same function name with different implementations:**  
   A. Inheritance  
   B. Abstraction  
   C. Polymorphism ✅  
   D. Encapsulation
3. **Which of these is not a high-level language?**  
   A. Java  
   B. Python  
   C. Assembly ✅  
   D. C++
4. **Which data structure is FIFO based?**  
   A. Stack  
   B. Queue ✅  
   C. Array  
   D. Tree
5. **Which device is used for internet connectivity?**  
   A. Printer  
   B. Modem ✅  
   C. Scanner  
   D. Monitor
6. **Which protocol is used to browse web pages?**  
   A. FTP  
   B. HTTP ✅  
   C. TCP  
   D. SNMP
7. **What is an IP address?**  
   A. Hardware ID  
   B. Physical address  
   C. Logical address ✅  
   D. DNS address
8. **Which HTML tag is used for creating paragraphs?**  
   A. <br>  
   B. <div>  
   C. <p> ✅  
   D. <h1>
9. **Which SQL command modifies existing data?**  
   A. SELECT  
   B. INSERT  
   C. UPDATE ✅  
   D. CREATE
10. **Which language is interpreted, not compiled?**  
    A. Java  
    B. C++  
    C. Python ✅  
    D. C
11. **Which of the following is volatile memory?**  
    A. ROM  
    B. SSD  
    C. RAM ✅  
    D. HDD
12. **Which device translates domain names to IP addresses?**  
    A. Router  
    B. Switch  
    C. DNS server ✅  
    D. Modem
13. **Which symbol is used to denote an ID selector in CSS?**  
    A. .  
    B. # ✅  
    C. @  
    D. \*
14. **Which SQL clause filters rows?**  
    A. ORDER BY  
    B. WHERE ✅  
    C. GROUP BY  
    D. SELECT
15. **The OS component that manages memory is called:**  
    A. Scheduler  
    B. Loader  
    C. Memory Manager ✅  
    D. Dispatcher

### 🟡 **Medium Level (15 Questions)**

1. **In object-oriented programming, abstraction means:**  
   A. Hiding data implementation ✅  
   B. Multiple inheritance  
   C. Class inheritance  
   D. Overloading
2. **In a binary tree, how many children can a node have at most?**  
   A. 3  
   B. 2 ✅  
   C. 4  
   D. 1
3. **Which command is used to delete a table in SQL?**  
   A. REMOVE TABLE  
   B. DELETE TABLE  
   C. DROP TABLE ✅  
   D. TRUNCATE
4. **Which HTML tag creates a hyperlink?**  
   A. <href>  
   B. <link>  
   C. <a> ✅  
   D. <hlink>
5. **What is the purpose of NAT in networking?**  
   A. Translate MAC to IP  
   B. Translate IP to hostname  
   C. Translate private IP to public IP ✅  
   D. Encrypt data packets
6. **Which scheduling algorithm selects the shortest process next?**  
   A. FCFS  
   B. Round Robin  
   C. SJF ✅  
   D. Priority
7. **Which of these is not a Java primitive type?**  
   A. int  
   B. float  
   C. String ✅  
   D. char
8. **Which database object is used to enforce data integrity?**  
   A. Procedure  
   B. Trigger  
   C. Constraint ✅  
   D. Cursor
9. **Which protocol is used for secure web communication?**  
   A. FTP  
   B. HTTP  
   C. HTTPS ✅  
   D. SSH
10. **Which of these sorts is best for large datasets on disk?**  
    A. QuickSort  
    B. MergeSort ✅  
    C. BubbleSort  
    D. SelectionSort
11. **Which concept allows a subclass to override a parent method?**  
    A. Encapsulation  
    B. Overloading  
    C. Inheritance  
    D. Polymorphism ✅
12. **Which attack exploits input fields in web forms?**  
    A. Phishing  
    B. SQL Injection ✅  
    C. DoS  
    D. Keylogging
13. **Which operator is used for logical AND in C++?**  
    A. &  
    B. && ✅  
    C. AND  
    D. ||
14. **In normalization, which form removes partial dependencies?**  
    A. 1NF  
    B. 2NF ✅  
    C. 3NF  
    D. BCNF
15. **What is the output of 5 % 2 in C++?**  
    A. 2  
    B. 2.5  
    C. 1 ✅  
    D. 0

### 🔵 **Complex Level (15 Questions)**

1. **Which sorting algorithm uses the divide-and-conquer technique?**  
   A. Bubble Sort  
   B. Selection Sort  
   C. Merge Sort ✅  
   D. Insertion Sort
2. **The height of an AVL tree with n nodes is:**  
   A. log n ✅  
   B. n  
   C. √n  
   D. n log n
3. **Which component converts high-level code into machine code?**  
   A. Compiler ✅  
   B. Linker  
   C. Assembler  
   D. Loader
4. **What is the complexity of inserting into a hash table (average case)?**  
   A. O(1) ✅  
   B. O(log n)  
   C. O(n)  
   D. O(n log n)
5. **In cybersecurity, what does 'CIA' stand for?**  
   A. Confidentiality, Integrity, Availability ✅  
   B. Code Integrity Algorithm  
   C. Cybersecurity and Internet Access  
   D. Communication, Internet, Access
6. **Which HTTP method is idempotent?**  
   A. GET ✅  
   B. POST  
   C. PUT  
   D. PATCH
7. **Which OS uses a monolithic kernel?**  
   A. Windows  
   B. Linux ✅  
   C. Android  
   D. macOS
8. **What is the function of a load balancer?**  
   A. Stores database  
   B. Routes traffic efficiently ✅  
   C. Caches files  
   D. Encrypts messages
9. **What does the ACID property in DBMS ensure?**  
   A. Database performance  
   B. Query optimization  
   C. Transaction reliability ✅  
   D. User authentication
10. **Which cache mapping technique uses least memory?**  
    A. Associative  
    B. Direct ✅  
    C. Set associative  
    D. Multilevel
11. **Which emerging tech uses distributed ledgers?**  
    A. AI  
    B. IoT  
    C. Blockchain ✅  
    D. Big Data
12. **Which form of inheritance results in a diamond problem?**  
    A. Single  
    B. Multilevel  
    C. Hierarchical  
    D. Multiple ✅
13. **Which data structure is ideal for recursion?**  
    A. Queue  
    B. Linked List  
    C. Stack ✅  
    D. Tree
14. **Which part of CPU manages instruction decoding?**  
    A. ALU  
    B. Control Unit ✅  
    C. Registers  
    D. Cache
15. **Which web technology allows communication between client and server in real time?**  
    A. AJAX  
    B. WebSocket ✅  
    C. REST  
    D. SOAP

### 🔴 **Hard Level (15 Questions)**

1. **What is the best-case time complexity of QuickSort?**  
   A. O(n²)  
   B. O(n log n) ✅  
   C. O(n)  
   D. O(log n)
2. **How many minimum edges are there in a connected graph with n nodes?**  
   A. n  
   B. n-1 ✅  
   C. n+1  
   D. n²
3. **What does HTTPS use for encryption?**  
   A. SSL/TLS ✅  
   B. SSH  
   C. IPsec  
   D. VPN
4. **What is a race condition in OS?**  
   A. Network conflict  
   B. Concurrent access to shared resource ✅  
   C. CPU overflow  
   D. Memory leak
5. **In deadlock, which condition ensures circular waiting?**  
   A. Mutual exclusion  
   B. Hold and wait  
   C. Circular wait ✅  
   D. No preemption
6. **Which algorithm is used in Dijkstra’s shortest path?**  
   A. Greedy ✅  
   B. Backtracking  
   C. Divide and conquer  
   D. Dynamic
7. **Which type of join returns only matching rows?**  
   A. LEFT JOIN  
   B. RIGHT JOIN  
   C. INNER JOIN ✅  
   D. OUTER JOIN
8. **Which type of cyberattack floods the network?**  
   A. SQL injection  
   B. DDoS ✅  
   C. Brute force  
   D. MITM
9. **In Java, which collection does not allow duplicates?**  
   A. List  
   B. Set ✅  
   C. Queue  
   D. Map
10. **In RAID 5, how is data distributed?**  
    A. Duplicated  
    B. Striped with parity ✅  
    C. Mirrored  
    D. Sequentially
11. **Which technology uses machine learning to identify patterns?**  
    A. Blockchain  
    B. IoT  
    C. AI ✅  
    D. WiFi
12. **In compiler design, what is a symbol table used for?**  
    A. Execution  
    B. Code generation  
    C. Storing variable info ✅  
    D. Linking
13. **Which is used for remote login?**  
    A. FTP  
    B. SMTP  
    C. SSH ✅  
    D. POP3
14. **Which notation represents prefix?**  
    A. A + B  
    B. +AB ✅  
    C. AB+  
    D. A B +
15. **Which SQL keyword combines result sets?**  
    A. JOIN  
    B. MERGE  
    C. UNION ✅  
    D. INTERSECT

### 🟣 **Mixed Level (15 Questions)**

1. **Which of these is a web server?**  
   A. MySQL  
   B. Apache ✅  
   C. Jenkins  
   D. MongoDB
2. **Which file extension is used for Java files?**  
   A. .java ✅  
   B. .jv  
   C. .js  
   D. .class
3. **Which layer handles encryption in the OSI model?**  
   A. Session  
   B. Transport  
   C. Presentation ✅  
   D. Data Link
4. **Which tool automates CI/CD?**  
   A. Jenkins ✅  
   B. GitHub  
   C. Docker  
   D. Git
5. **Which of these is a primary key constraint?**  
   A. Allows duplicates  
   B. Must be null  
   C. Unique and not null ✅  
   D. Composite only
6. **Which part of CPU stores current instructions?**  
   A. ALU  
   B. Register ✅  
   C. RAM  
   D. ROM
7. **Which protocol ensures reliable delivery?**  
   A. UDP  
   B. TCP ✅  
   C. FTP  
   D. HTTP
8. **Which device forwards packets based on IP address?**  
   A. Switch  
   B. Router ✅  
   C. Bridge  
   D. Hub
9. **Which cloud model offers virtual servers?**  
   A. SaaS  
   B. IaaS ✅  
   C. PaaS  
   D. DBaaS
10. **Which language is used for scripting in web browsers?**  
    A. PHP  
    B. JavaScript ✅  
    C. Python  
    D. Perl
11. **Which tag is used to insert an image in HTML?**  
    A. <image>  
    B. <img> ✅  
    C. <src>  
    D. <pic>
12. **Which function returns string length in SQL?**  
    A. LENGTH() ✅  
    B. STRLEN()  
    C. SIZE()  
    D. CHARCOUNT()
13. **Which technology uses containers?**  
    A. Git  
    B. Docker ✅  
    C. Java  
    D. XML
14. **Which of the following ensures availability in networks?**  
    A. Backup  
    B. Load Balancer ✅  
    C. Proxy  
    D. DMZ
15. **Which of the following is an open-source database?**  
    A. SQL Server  
    B. Oracle  
    C. MySQL ✅  
    D. DB2

### 🟢 **Basic Level (15 Questions)**

1. **Which of the following is considered the brain of the computer?**  
   A. RAM  
   B. CPU ✅  
   C. ROM  
   D. GPU
2. **Which generation of computers used integrated circuits?**  
   A. First  
   B. Second  
   C. Third ✅  
   D. Fourth
3. **What is encapsulation in OOP?**  
   A. Combining data and functions into one unit ✅  
   B. Using multiple classes  
   C. Inheriting properties  
   D. Overriding methods
4. **Which of these is a linear data structure?**  
   A. Binary Tree  
   B. Graph  
   C. Queue ✅  
   D. Hash Table
5. **Which of the following is a network topology?**  
   A. Stack  
   B. Star ✅  
   C. Table  
   D. Heap
6. **Which software model is also known as the verification and validation model?**  
   A. Agile  
   B. Waterfall  
   C. V-Model ✅  
   D. Spiral
7. **Which OS is open-source and widely used in servers?**  
   A. Windows  
   B. macOS  
   C. Linux ✅  
   D. DOS
8. **What does a firewall do?**  
   A. Boosts internet speed  
   B. Blocks unauthorized access ✅  
   C. Installs antivirus  
   D. Increases bandwidth
9. **What does HTML stand for?**  
   A. HighText Machine Language  
   B. HyperText Markup Language ✅  
   C. Hyperlinks Text Marking Language  
   D. None of the above
10. **Which command is used to remove all rows from a table in SQL?**  
    A. DROP  
    B. DELETE  
    C. TRUNCATE ✅  
    D. ERASE
11. **Which sorting algorithm has the best average performance?**  
    A. Bubble Sort  
    B. Merge Sort ✅  
    C. Insertion Sort  
    D. Selection Sort
12. **What does IP stand for in networking?**  
    A. Internet Protocol ✅  
    B. Internal Program  
    C. Input Protocol  
    D. Integrated Packet
13. **Which logic gate outputs true only if both inputs are true?**  
    A. OR  
    B. AND ✅  
    C. NOT  
    D. NAND
14. **Which key is used to uniquely identify rows in a table?**  
    A. Foreign Key  
    B. Primary Key ✅  
    C. Index  
    D. Super Key
15. **Which one is an interpreted programming language?**  
    A. C++  
    B. Java  
    C. Python ✅  
    D. Assembly

### 🟡 **Medium Level (15 Questions)**

1. **Which OOP concept allows reusability of code?**  
   A. Encapsulation  
   B. Inheritance ✅  
   C. Polymorphism  
   D. Abstraction
2. **Which data structure is used in a recursive function call?**  
   A. Queue  
   B. Tree  
   C. Stack ✅  
   D. Graph
3. **What type of IP address is 192.168.0.1?**  
   A. Public  
   B. Private ✅  
   C. Broadcast  
   D. Multicast
4. **Which model helps visualize data flow in software engineering?**  
   A. DFD ✅  
   B. ERD  
   C. Gantt  
   D. Use Case
5. **What is the function of a kernel in an OS?**  
   A. Manages I/O only  
   B. Schedules processes ✅  
   C. Encrypts data  
   D. Loads software
6. **Which of the following is a symmetric encryption algorithm?**  
   A. RSA  
   B. AES ✅  
   C. ECC  
   D. Diffie-Hellman
7. **Which tag in HTML is used to include JavaScript?**  
   A. <js>  
   B. <script> ✅  
   C. <java>  
   D. <code>
8. **Which SQL statement is used to fetch unique records?**  
   A. SELECT  
   B. SELECT DISTINCT ✅  
   C. SELECT UNIQUE  
   D. FILTER
9. **Which searching algorithm is best for sorted arrays?**  
   A. Linear Search  
   B. Jump Search  
   C. Binary Search ✅  
   D. Hashing
10. **Which addressing mode is used in array implementation?**  
    A. Immediate  
    B. Register  
    C. Indexed ✅  
    D. Direct
11. **Which protocol ensures email delivery?**  
    A. FTP  
    B. SMTP ✅  
    C. HTTP  
    D. SNMP
12. **Which database index improves search performance?**  
    A. Cluster  
    B. Index ✅  
    C. View  
    D. Cursor
13. **What is the time complexity of QuickSort in the worst case?**  
    A. O(n log n)  
    B. O(log n)  
    C. O(n²) ✅  
    D. O(n)
14. **Which OS scheduling algorithm is preemptive?**  
    A. FCFS  
    B. SJF  
    C. Round Robin ✅  
    D. Priority (non-preemptive)
15. **What does DNS do in a network?**  
    A. Provides internet speed  
    B. Assigns IP addresses  
    C. Resolves domain names ✅  
    D. Manages routing

### 🔵 **Complex Level (15 Questions)**

1. **Which property ensures a transaction completes fully or not at all in DBMS?**  
   A. Durability  
   B. Consistency  
   C. Atomicity ✅  
   D. Isolation
2. **Which algorithm is used in route optimization (like Google Maps)?**  
   A. Bellman-Ford  
   B. Dijkstra ✅  
   C. Prim's  
   D. BFS
3. **What is virtual memory?**  
   A. Memory on the cloud  
   B. Hard disk space used as RAM ✅  
   C. Reserved cache  
   D. Non-volatile RAM
4. **Which of the following protects against man-in-the-middle attacks?**  
   A. Firewalls  
   B. SSL/TLS ✅  
   C. NAT  
   D. Routers
5. **Which protocol helps assign IP addresses dynamically?**  
   A. DNS  
   B. DHCP ✅  
   C. FTP  
   D. TCP
6. **What is the main role of a compiler?**  
   A. Code optimization  
   B. Code interpretation  
   C. Code translation to machine code ✅  
   D. Code formatting
7. **Which hashing technique handles collision with least memory use?**  
   A. Linear Probing ✅  
   B. Chaining  
   C. Separate Addressing  
   D. Mod Hashing
8. **Which SDLC model emphasizes risk analysis?**  
   A. Waterfall  
   B. Spiral ✅  
   C. Agile  
   D. V-Model
9. **Which algorithm solves dynamic problems by breaking into overlapping subproblems?**  
   A. Divide & Conquer  
   B. Greedy  
   C. Dynamic Programming ✅  
   D. Backtracking
10. **Which HTTP method is considered unsafe?**  
    A. GET  
    B. PUT  
    C. POST ✅  
    D. DELETE
11. **Which RAID level provides fault tolerance and speed both?**  
    A. RAID 0  
    B. RAID 1  
    C. RAID 5 ✅  
    D. RAID 2
12. **Which OS algorithm handles page replacement optimally?**  
    A. FIFO  
    B. LRU  
    C. Optimal ✅  
    D. Random
13. **Which network layer in OSI adds source/destination IPs?**  
    A. Transport  
    B. Network ✅  
    C. Data Link  
    D. Application
14. **Which of the following is not a relational database?**  
    A. PostgreSQL  
    B. Oracle  
    C. MongoDB ✅  
    D. MySQL
15. **Which OOP principle supports interface over implementation inheritance?**  
    A. Liskov Substitution ✅  
    B. Abstraction  
    C. Encapsulation  
    D. Polymorphism

### 🔴 **Hard Level (15 Questions)**

1. **Which layer of the OSI model ensures error-free delivery?**  
   A. Network  
   B. Transport ✅  
   C. Session  
   D. Application
2. **Which scheduling algorithm suffers from starvation?**  
   A. FCFS  
   B. Round Robin  
   C. Priority Scheduling ✅  
   D. Multilevel Queue
3. **Which attack captures data during transmission?**  
   A. DoS  
   B. Keylogging  
   C. MITM ✅  
   D. XSS
4. **Which tree is used for indexing in DBMS?**  
   A. Binary Tree  
   B. AVL Tree  
   C. B+ Tree ✅  
   D. Red-Black Tree
5. **Which Java keyword prevents method overriding?**  
   A. static  
   B. final ✅  
   C. private  
   D. abstract
6. **What is the complexity of matrix multiplication (naïve method)?**  
   A. O(n²)  
   B. O(n³) ✅  
   C. O(n log n)  
   D. O(log n)
7. **Which protocol works at transport layer of TCP/IP model?**  
   A. FTP  
   B. TCP ✅  
   C. IP  
   D. ARP
8. **What is the effect of normalization in DBMS?**  
   A. Data redundancy reduction ✅  
   B. Data duplication  
   C. Increased access speed  
   D. Complex queries
9. **Which of the following is not part of the ACID properties?**  
   A. Atomicity  
   B. Consistency  
   C. Dependency ✅  
   D. Isolation
10. **Which cache memory principle is based on recent use?**  
    A. FIFO  
    B. MRU  
    C. LRU ✅  
    D. Random
11. **Which file system is used in modern Linux systems?**  
    A. FAT32  
    B. NTFS  
    C. ext4 ✅  
    D. HFS
12. **Which algorithm is used in cryptographic hashing?**  
    A. RSA  
    B. SHA-256 ✅  
    C. AES  
    D. TLS
13. **Which system call in OS is used to create a process?**  
    A. fork() ✅  
    B. exec()  
    C. kill()  
    D. wait()
14. **Which layer of TCP/IP ensures reliability?**  
    A. Application  
    B. Transport ✅  
    C. Network  
    D. Physical
15. **Which NoSQL database uses key-value pairs?**  
    A. MongoDB  
    B. CouchDB  
    C. Redis ✅  
    D. Neo4j

### 🟣 **Mixed Level (15 Questions)**

1. **Which of the following is a hybrid cloud provider?**  
   A. Dropbox  
   B. Azure ✅  
   C. Gmail  
   D. Apache
2. **Which of these is used for virtualization?**  
   A. Jenkins  
   B. VMWare ✅  
   C. Kubernetes  
   D. GitLab
3. **Which version of IP supports more addresses?**  
   A. IPv4  
   B. IPv5  
   C. IPv6 ✅  
   D. IPv3
4. **Which of these is an interface definition language?**  
   A. YAML  
   B. JSON  
   C. WSDL ✅  
   D. XSLT
5. **Which memory is closest to the CPU?**  
   A. HDD  
   B. RAM  
   C. Cache ✅  
   D. SSD
6. **Which of these helps scale microservices?**  
   A. Docker  
   B. Kubernetes ✅  
   C. Nginx  
   D. Maven
7. **Which of these is an example of functional programming?**  
   A. Java  
   B. C++  
   C. Haskell ✅  
   D. Perl
8. **Which algorithm is used for compression?**  
   A. Dijkstra  
   B. Huffman ✅  
   C. Prim’s  
   D. QuickSort
9. **Which of these is a structured data format?**  
   A. HTML  
   B. JSON ✅  
   C. JPEG  
   D. WAV
10. **Which component of CPU performs logic operations?**  
    A. Register  
    B. ALU ✅  
    C. Control Unit  
    D. Cache
11. **Which Java collection allows duplicates and maintains order?**  
    A. Set  
    B. Map  
    C. List ✅  
    D. TreeSet
12. **Which OSI layer establishes sessions between hosts?**  
    A. Transport  
    B. Application  
    C. Session ✅  
    D. Network
13. **What is the full form of SaaS?**  
    A. Software as a Solution  
    B. Software as a Service ✅  
    C. Software and System  
    D. Service at a Server
14. **Which encryption is one-way only?**  
    A. AES  
    B. RSA  
    C. Hashing ✅  
    D. DES
15. **What is the main benefit of cloud computing?**  
    A. Limited scalability  
    B. Vendor lock-in  
    C. On-demand resource availability ✅  
    D. Local hosting

### 🟢 **Basic Level (15 Questions)**

1. **What does GUI stand for?**  
   A. Graphical User Interface ✅  
   B. General User Input  
   C. Graphic Unit Interaction  
   D. General Usage Interface
2. **Which component temporarily holds data being processed?**  
   A. Hard Disk  
   B. Cache  
   C. RAM ✅  
   D. ROM
3. **Which of the following is a feature of OOPs?**  
   A. Modularity ✅  
   B. Compilation  
   C. Parsing  
   D. Interpretation
4. **Which data structure follows LIFO order?**  
   A. Queue  
   B. Stack ✅  
   C. Linked List  
   D. Tree
5. **Which device connects multiple networks together?**  
   A. Switch  
   B. Hub  
   C. Router ✅  
   D. Modem
6. **Which SDLC model executes each phase once in order?**  
   A. Spiral  
   B. Waterfall ✅  
   C. Agile  
   D. RAD
7. **Which operating system is developed by Apple?**  
   A. Android  
   B. Windows  
   C. Linux  
   D. macOS ✅
8. **Which of the following is a strong password?**  
   A. 12345678  
   B. qwerty  
   C. P@ssW0rd#123 ✅  
   D. password1
9. **CSS is used in web development for:**  
   A. Structure  
   B. Database  
   C. Styling ✅  
   D. Backend logic
10. **Which SQL clause is used to sort results?**  
    A. GROUP BY  
    B. HAVING  
    C. ORDER BY ✅  
    D. WHERE
11. **Which algorithm is NOT a sorting algorithm?**  
    A. Bubble Sort  
    B. Insertion Sort  
    C. Binary Search ✅  
    D. Merge Sort
12. **Which of the following uniquely identifies a device on a network?**  
    A. MAC Address ✅  
    B. Hostname  
    C. Gateway  
    D. Subnet
13. **Which component performs arithmetic operations in a computer?**  
    A. Register  
    B. ALU ✅  
    C. Cache  
    D. CU
14. **Which language is primarily used for Android development?**  
    A. Swift  
    B. Kotlin ✅  
    C. PHP  
    D. Go
15. **Which of the following is a spreadsheet program?**  
    A. Word  
    B. PowerPoint  
    C. Excel ✅  
    D. Access

### 🟡 **Medium Level (15 Questions)**

1. **Which access modifier in Java allows visibility within the same package?**  
   A. private  
   B. protected  
   C. default ✅  
   D. public
2. **Which data structure is used in BFS (Breadth-First Search)?**  
   A. Stack  
   B. Queue ✅  
   C. Heap  
   D. Tree
3. **Which address is used to send packets to all nodes in a network?**  
   A. Unicast  
   B. Anycast  
   C. Broadcast ✅  
   D. Multicast
4. **Which diagram is used in requirement gathering?**  
   A. Gantt chart  
   B. DFD ✅  
   C. ERD  
   D. Flowchart
5. **Which OS concept allows multiple users to share system resources?**  
   A. Single-tasking  
   B. Multi-threading  
   C. Multi-user ✅  
   D. Kernel
6. **Which of the following is a passive attack in cybersecurity?**  
   A. Phishing  
   B. Eavesdropping ✅  
   C. DoS  
   D. SQL Injection
7. **What is the use of <form> in HTML?**  
   A. Display content  
   B. Add styling  
   C. Submit user input ✅  
   D. Animate text
8. **Which SQL keyword is used to combine rows from two or more tables?**  
   A. MERGE  
   B. COMBINE  
   C. JOIN ✅  
   D. CONNECT
9. **Which algorithm uses a divide-and-conquer strategy?**  
   A. Bubble Sort  
   B. Binary Search ✅  
   C. Linear Search  
   D. Insertion Sort
10. **Which bus carries control signals in a computer system?**  
    A. Data Bus  
    B. Control Bus ✅  
    C. Address Bus  
    D. Serial Bus
11. **Which protocol is used for secure web browsing?**  
    A. HTTP  
    B. FTP  
    C. HTTPS ✅  
    D. SMTP
12. **Which statement is used to remove a table from the database?**  
    A. REMOVE  
    B. DELETE  
    C. DROP ✅  
    D. ERASE
13. **What is the height of a binary tree with only a root node?**  
    A. 0 ✅  
    B. 1  
    C. -1  
    D. 2
14. **Which OSI layer is responsible for encryption and compression?**  
    A. Transport  
    B. Presentation ✅  
    C. Session  
    D. Application
15. **Which memory unit is fastest?**  
    A. RAM  
    B. ROM  
    C. Cache ✅  
    D. SSD

### 🔵 **Complex Level (15 Questions)**

1. **Which SQL constraint ensures no two rows have the same value in a column?**  
   A. CHECK  
   B. UNIQUE ✅  
   C. NOT NULL  
   D. FOREIGN KEY
2. **Which tree is height-balanced and used in databases?**  
   A. Binary Tree  
   B. AVL Tree  
   C. B-Tree ✅  
   D. Heap
3. **Which layer of OSI handles segmentation and reassembly?**  
   A. Network  
   B. Transport ✅  
   C. Data Link  
   D. Application
4. **Which of the following hashing techniques uses a secondary hash function?**  
   A. Linear Probing  
   B. Chaining  
   C. Double Hashing ✅  
   D. Open Addressing
5. **Which metric evaluates efficiency of an algorithm based on resource use?**  
   A. Time Complexity ✅  
   B. Accuracy  
   C. Redundancy  
   D. Compression Ratio
6. **Which protocol is used to securely transfer files over SSH?**  
   A. FTP  
   B. SCP ✅  
   C. HTTP  
   D. SNMP
7. **Which architecture uses control and data signals in one bus?**  
   A. Von Neumann ✅  
   B. Harvard  
   C. ISA  
   D. PCI
8. **Which OS concept ensures process independence?**  
   A. Pipelining  
   B. Memory Protection ✅  
   C. Scheduling  
   D. Paging
9. **Which design pattern encapsulates a request as an object?**  
   A. Observer  
   B. Strategy  
   C. Command ✅  
   D. Singleton
10. **Which sorting algorithm performs worst with nearly sorted input?**  
    A. Merge Sort  
    B. Quick Sort ✅  
    C. Bubble Sort  
    D. Insertion Sort
11. **Which normal form removes transitive dependencies?**  
    A. 1NF  
    B. 2NF  
    C. 3NF ✅  
    D. BCNF
12. **Which method is used to overload operators in C++?**  
    A. define  
    B. overload  
    C. operator ✅  
    D. virtual
13. **Which cloud model provides a complete software solution?**  
    A. IaaS  
    B. PaaS  
    C. SaaS ✅  
    D. DaaS
14. **Which algorithm ensures mutual exclusion in concurrent processing?**  
    A. Kruskal’s  
    B. Dijkstra’s  
    C. Peterson’s ✅  
    D. Floyd’s
15. **Which data structure gives O(1) time complexity for search?**  
    A. Array  
    B. Binary Tree  
    C. Hash Table ✅  
    D. Stack

### 🔴 **Hard Level (15 Questions)**

1. **Which protocol does SNMP use for transport?**  
   A. TCP  
   B. FTP  
   C. UDP ✅  
   D. ICMP
2. **Which OS scheduling method is best for time-sharing systems?**  
   A. FCFS  
   B. Round Robin ✅  
   C. Priority  
   D. SJF
3. **Which attack manipulates database queries via input fields?**  
   A. CSRF  
   B. DoS  
   C. SQL Injection ✅  
   D. MITM
4. **What’s the time complexity of Heap Sort?**  
   A. O(n)  
   B. O(n log n) ✅  
   C. O(n²)  
   D. O(log n)
5. **Which microprocessor register holds the memory address of data?**  
   A. MAR ✅  
   B. MDR  
   C. IR  
   D. PC
6. **Which RAID level offers block-level striping and distributed parity?**  
   A. RAID 0  
   B. RAID 1  
   C. RAID 5 ✅  
   D. RAID 6
7. **Which of the following is used to isolate virtual networks in cloud?**  
   A. CIDR  
   B. VPC ✅  
   C. NAT  
   D. VPN
8. **Which of the following is not a type of NoSQL database?**  
   A. Key-Value  
   B. Document  
   C. Relational ✅  
   D. Graph
9. **Which data structure does DFS use internally?**  
   A. Queue  
   B. Tree  
   C. Stack ✅  
   D. Array
10. **What is a dangling pointer in C?**  
    A. Pointer to heap  
    B. Pointer to NULL  
    C. Pointer to freed memory ✅  
    D. Static pointer
11. **Which is used to implement lazy evaluation in functional programming?**  
    A. Streams ✅  
    B. Recursion  
    C. Maps  
    D. Queues
12. **Which model is best for AI/ML model deployment?**  
    A. Waterfall  
    B. Spiral  
    C. DevOps ✅  
    D. V-Model
13. **Which part of the processor fetches and decodes instructions?**  
    A. ALU  
    B. Control Unit ✅  
    C. MAR  
    D. Cache
14. **Which statement releases a lock in multithreading?**  
    A. wait()  
    B. notify()  
    C. unlock() ✅  
    D. join()
15. **Which algorithm is best for cycle detection in graphs?**  
    A. DFS ✅  
    B. BFS  
    C. Prim’s  
    D. Kruskal’s

### 🟣 **Mixed Level (15 Questions)**

1. **Which of these is NOT a compiled language?**  
   A. C  
   B. Java  
   C. Python ✅  
   D. Go
2. **Which data structure is optimal for implementing LRU cache?**  
   A. Array  
   B. Stack  
   C. LinkedHashMap ✅  
   D. Queue
3. **Which OS handles deadlock by preemption?**  
   A. Real-time  
   B. Multiprogramming  
   C. Distributed OS ✅  
   D. Time-sharing
4. **Which file format is used for storing web configuration in Spring Boot?**  
   A. JSON  
   B. YAML ✅  
   C. XML  
   D. TXT
5. **Which header file is required for file operations in C++?**  
   A. <iostream>  
   B. <conio.h>  
   C. <fstream> ✅  
   D. <stdlib.h>
6. **Which HTTP response code means "Forbidden"?**  
   A. 200  
   B. 404  
   C. 403 ✅  
   D. 401
7. **Which of the following is a machine learning framework?**  
   A. NumPy  
   B. Matplotlib  
   C. TensorFlow ✅  
   D. Flask
8. **Which component ensures two transactions do not interfere?**  
   A. Lock Manager ✅  
   B. Query Optimizer  
   C. Buffer Manager  
   D. Scheduler
9. **Which attack is specific to wireless networks?**  
   A. ARP Spoofing  
   B. Evil Twin ✅  
   C. XSS  
   D. Ransomware
10. **Which layer manages session establishment in TCP/IP?**  
    A. Transport ✅  
    B. Network  
    C. Application  
    D. Data Link
11. **Which is a dynamic routing protocol?**  
    A. DNS  
    B. OSPF ✅  
    C. TCP  
    D. NAT
12. **Which command is used to compile Java programs?**  
    A. javac ✅  
    B. java  
    C. jvm  
    D. jar
13. **Which hashing algorithm is used in blockchain?**  
    A. MD5  
    B. SHA-256 ✅  
    C. AES  
    D. DES
14. **What is containerization in DevOps?**  
    A. Network virtualization  
    B. Process isolation ✅  
    C. File system encryption  
    D. Code generation
15. **Which Python library is used for data analysis?**  
    A. Matplotlib  
    B. Pandas ✅  
    C. TensorFlow  
    D. PyTorch