

DBMS

1. Differentiate between Database and DBMS ?
2. Advantages of DBMS over File system ?
3. Define ER diagram and its 3 components ?
4. Define all the 3 components of the ER diagram ?
5. Define different keys in DBMS ?
6. What is decomposition in DBMS and its type ?
7. Why do we use Normalization in DBMS ?
8. Types of Normalization in DBMS ?
9. How is BCNF different from other 3 forms of Normalization ?
10. What are different states in Transitions ?
11. What is ACID property in DBMS ?
12. What are the types of schedules in DBMS and define them ?
13. Why is serializability used ?

Schedules diagram in DBMS and Transitions in DBMS

14. What are the different DDL, DML, DCL, TCL commands ?
15. Write Syntax for each queries ?
16. Difference between DROP, TRUNCATE, DELETE command ?
17. Why is NULL used instead of 0 value ?
18. Why is LIKE used instead of = sign ?
19. Explain different types of JOINS in SQL ?

20. Real Life example where DBMS can be used ?
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OOPs

1. What are the 5 pillars of OOPs?
2. What is the need of OOPs ?
3. What is Class and Objects ?
4. What are the different types of Access modifiers ?
5. What are Constructors and their types ?
6. What is a destructor ?
7. What happens when the destructor is not defined ?
8. What happens when the STATIC keyword is used ?
9. What are friend functions ?
10. What is Abstraction? What are the real life examples for it ?
11. What is Encapsulation? What are the real life examples for it ?
12. What is Inheritance? What are the real life examples for it ?
13. What are the different types of Inheritance ?
14. What is Polymorphism? What are the real life examples for it ?
15. Difference between Overloading and overriding ?
16. What is Virtual function and Virtual Class ?

17. What are the rules for defining virtual functions ?
 18. What is a Pure virtual function ? What is Abstract class ?
 19. What is a virtual destructor ?
 20. What is a copy constructor ?
 21. Difference between deep copy and shallow copy ?
 22. What is the use of namespaces in a program ?
 23. What is the use of the header function in a program ?
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OS

1. What are the 5 functionalities of an OS ?
2. What are the different types of OS ?
3. What is a System call and why is it used ?
4. Differentiate between User Mode and Kernel Mode ?
5. Differentiate between Process and Thread ?
6. What is Context Switching ?
7. What are the different types of Process Scheduling algorithms ?
8. What is turn around time, waiting time, response time ?

All the types of Algorithms(FCFC, SJF, SRTF, Round Robin)

9. What is the Gantt Chart used for ?
 10. Difference between Multilevel Queue Scheduling and Multilevel Feedback Scheduling ?
 11. What is Race Condition ?
 12. What is the Critical Section ?
 13. What are the 4 conditions for avoiding the Race Condition/Critical section/Deadlock ?
 14. What is semaphore and why is it used ?
 15. What is a deadlock and how to avoid it ?
 16. Why is memory management important and what are its types ?
 17. What are the algorithms for contiguous memory management ?
 18. What is paging and page table entry ?
 19. What is trashing ?
 20. What is segmentation ?
 21. What is virtual memory and why is it used ?
 22. What are the different types of Page replacement algorithms(RPA) ?
 23. What is Internal fragmentation and External fragmentation ?
 24. What is the advantage of linked list allocation and indexed allocation ?
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CN

1. What is Network?
2. What are the different types of Network Topologies ?
3. Real Life examples of different types of Network Topologies ?
4. What are the different types of Networks ?

5. What is VPN and explain its working ?
 6. Advantages and disadvantages of VPN ?
 7. Difference between MAC address and IP address ?
 8. Difference between Private and public IP address ?
 9. Difference between IPv4 and IPv6 ?
 10. Explain in detail the OSI model ?
 11. difference between TCP and OSI model ?
 12. Difference between gateway and router ?
 13. What is DNS and explain its working ?
 14. What is Subnet ?
 15. What is a firewall ?
 16. What are the different types of Network delays ?
 17. What is 3-way handshaking ?
 18. Difference between HTTP and HTTPS ?
 19. What is load balancing ?
 20. Difference between TCP and UDP ?
 21. Explain the difference between Hub and Switch ?
 22. Explain the working of searching for things in Google/What happens when you enter google.com in your browser ?
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