**DBMS Question Bank**

**Unit 1**

1) What is DBMS? List and explain few application areas of DBMS in short.

2) Compare and contrast between DBMS and file system.

3) What is a ‘View of Data’? What are the different levels of views?

OR

3) What is data abstraction? Explain the three levels of data abstraction with suitable diagram.

4) Explain: Instances and Schemas with proper example.

5) What is a data model? What are the various data models in DBMS? Introduce them in short.

OR

5) Explain the entity–relationship data model in short with example.

OR

5) Draw and explain with example, the symbols used to draw the E-R model.

OR

5) Explain the following data models: a) Network Model b) Object-relational data model.

6) What is DDL and DML? Explain them in detail.

7) What is data dictionary or data directory? Explain the concept of metadata in detail with suitable example.

8) List and explain the components of DBMS.

OR

8) With suitable architectural diagram explain the various components of DBMS.

9) What is DBA? Describe the role and responsibilities of DBA.

10) What is an entity and relation? What are the possible types of relations between the entity sets?

11) Explain the concept of ‘Key’. List and explain with example the various keys in DBMS.

12) Explain the concept of ‘weak’ and ‘strong ‘ entity sets with suitable example.

13) What is extended E-R diagrams?

14) Write a short note on: a) Specialization b) Generalization c) Aggregation

**Unit 2**

1) Define: a) Table, Tuple and Attribute with example b) Degree and Cardinality of a relationship with example.

2) What is domain of an attribute? When we can say that a domain of an attribute is atomic? Explain with example.

3) List and explain the various relational modeling constraints.

OR

3) Write a short note on: a) Domain Constraints b) Referential Integrity constraints

3) Write a short note on: a) Entity Integrity constraints b) Key Constraints

4) What is relational algebra? List the fundamental operations used in the relational algebra.

OR

4) Explain with example, the relational algebra operations: a) Selection b) Projection c) Union

d) Set-Difference e) Cartesian product f) Insertion g) Division h) Assignment i) Join j) Rename.

**(any 2-3 might be asked for 6 marks).**

**Any queries on relational algebra might be asked.**

5) What is SQL? List the rules and characteristics of SQL.

**Any queries on SQL might be asked.**

**Unit 3**

1) What is ‘Normalization’? What is the purpose of database normalization?

2) What are the various possible anomalies in the database, that has redundant data?

OR

2) Write a short note on: a) Insertion Anomalies b) Deletion Anomalies c) Modification Anomalies.

3) What is decomposition of a relation? What precautions should be followed while decomposing a relation?

4) List the various forms of database normalization and explain 1NF and 2NF in detail.

OR

4) List the various forms of database normalization and explain 3NF and Boyce-Codd NF in detail.

OR

4) List the various forms of database normalization and explain 4NF and 5NF in detail.

5) Write a short note on: Multivalve Dependency with example.

**Unit 4**

1) List and explain the several types of data storage exist in computer systems.

2) List and explain in short the factors involving in selecting a particular file organization.

3) List and explain in short the most commonly used file organizations systems in DBMS.

4) Write a short note on: Fixed Length Records and Variable Length Records.

5) Write and explain the various approaches to delete a record from a serial file with proper example.

6) List and explain the techniques to implement Variable Length Records (VLRs).

OR

6) Write a short note on: The Reserve Space Method **or** The Pointer Method **or** The Combined Method.

7) What is file organization? Explain in detail the sequential file organization.

OR

7) What is file organization? Explain in detail the indexed file organization.

8) List and explain the advantages and disadvantages of sequential file organization.

9) List and explain the advantages and disadvantages of indexed file organization.

10)Explain the concept of multilevel indexing on primary key.

11) What is hashing? Explain hash key and hash function in brief. List the properties of hash function.

12) Write a short note on: Open Hashing or External Hashing.

13) Write a short note on: Closed Hashing or Internal Hashing.

14) What is a ‘B Tree’ or balanced tree? With suitable diagram explain all the important features of a node in a B-tree.

15) List and explain the properties of a B-Tree. Explain the concept of ‘Order of a B-Tree’.

16) Given K=12 Bytes, Block Size=280 Bytes, Pr=Pointer to the record= 8 Bytes, Pb=pointer to the block = 10Bytes, find the order of a B-Tree.

17) With suitable steps explain the ‘ insertion’ of given keys in a B-Tree.

Key 🡺 A,B,C,D,E,,G,H,I,J,K,L,M,N,O,P,Q

Order of the B-Tree🡪 5

18) What is a database transaction? Explain with an example.

19) List and explain the properties of database transaction. (Or Write a short note on ACID Properties of a database transaction.)

20) With suitable diagram explain the various possible states of a database transaction.