**Department of Computer Science & Engneering**

**DBMS Important questions**

**UNIT-I**

1. Explain the benefit of database approach over file system.
2. What are the Main Characteristics of the Database Approach?
3. Explain the COMPONENTS OF DATABASE SYSTEM.
4. What do you mean by DBMS? Explain Its Functions?
5. Explain Database Users?
6. What is data model ? Explain Hierarchical, network and relational model?
7. What is schema? Explain Three Schema architecture of DBMS?
8. What do you mean by data independence? Explain logical vs physcial data independence.
9. Explain DBMS languages in detail?
10. Explain Entity-Relationship Model with advantages and drawback?
11. Creation of ER model and convert them into relation?
12. Explain Entity, entity set, entity type, types of attributes?
13. Explain Relationships and Relationship Types and Mapping Constraints?
14. Explain benefit of EER model and also explain aggregation generalization, Specialization

**UNIT-II**

1. What do you mean by union compatibility? List the operations ( select, project, union intersection, difference, division, rename) of relational algebra and purpose of each with example? Differ between union and union all? Explain division operation in detail?
2. In what sense relational algebra is differ from relational calculus and in what sense they are similar? Give an example for Aggregate operator/functions of relational Algebra?
3. Explain key constraint, Null value constraint, domain constraint, integrity constraint and referential integrity constraint using suitable example?
4. Explain various types of key using suitable example?
5. What do you understand by Theta join (non equi join), Equi join and natural join using suitable example?
6. What is mean by safe expression in relational calculus? Explain different types of quantifiers in relational calculus in detail?
7. What are codd’s 12 rules that a database must obey if it is considered to be truly relational?
8. Explain DDL , DML, DCL queries using example? Explain nested sub quires using example?
9. Explain the following using example:
10. Stored procedure (b) trigger (c) views (d) assertion

**UNIT-III**

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| Q.1 | What do you mean by normalization? Why it’s required? Explain its limitations? Explain the different types of anomalies in database using suitable example? |
| Q.2 | Explain INF, 2NF, 3NF, BCNF, 4NF and project join normal firm using suitable example? Justify the statement that every relation in BCNF is also in 3NF, but a relation in 3NF is not necessarily in BCNF? |
| Q.3 | What do you mean by F.D? Explain different types of F.D’s in database using suitable example? Explain inference rules? |
| Q.4 | Finding the minimal cover/canonical cover of R(A,B,C)  FD= {A🡪BC, B🡪C, A🡪B, AB🡪C} |
| Q.5 | Finding the candidates & minimal super key from given FDs for R  R(A,B,C,D,E)  FD = {AB🡪CD, D🡪A, BC🡪DE} |
| Q.6 | Check equivalence of set of F.D.  F = {A🡪C, C🡪DI, E🡪AB}  E= {A🡪C, C🡪DI, EC🡪AB, E🡪C} |
| Q.7 | What do you mean by lossless decomposition? Explain by taking one example? |
| Q.8 | Consider R(X,Y,Z,W) with FD’s F={X🡪Y, X🡪W, WY 🡪Z}  Prove or disprove F = X🡪Z |
| Q.9 | What do you mean by query optimization? Explain evaluation of expression process in query optimization? |
| Q.10 | Write a short note on join algorithm, statistics and cost base optimization? |
| Q.11 | Discuss the transaction execution state with a state transaction diagram and explain related problems in detail? |
| Q.12 | What do you mean by ACID property? Explain the different types of failures and read and write operation of a transaction? |
| Q.13 | What do you mean by concurrent processing? What is the problem with it? Explain in detail? |
| Q.14 | What is 2PL? Why it’s required? Explain different types of 2PL? |
| Q.15 | What is lock? Explain binary and shaved/explain lock using suitable example? |

**UNIT - IV**

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| Q.1 | Discuss issues and models for resident operation? Explain different types of recovery techniques in detail? |
| Q.2 | What do you mean by serializability of schedule? Explain conflict and view serializability? Explain steps to check conflict and view serializability? |
| Q.3 | What is multi version time stamp? What are its benefits and limitations? Explain basic To and Thomas write rule? |
| Q.4 | What is deadlock? What are necessary conditions for deadlock? Explain deadlock preventer protocol? |
| Q.5 | Explain the following:   1. Differentiate between deferred update and immediate update recovery techniques. 2. Differentiate between redo and undo recovery techniques. |
| Q.6 | Write a short note on   1. Result equivalence schedules 2. Distributed databases commit and lock 3. Validation 4. Concurrency control by time stamp. |