DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

LOKNAYAK JAI PRAKASH INSTITUTE OF TECHNOLOGY CHAPRA, BIHAR

Subject: Database System **Subject Code:** CS 1X09

DBMS Question Bank

1. What is database?
2. What is DBMS?
3. What is a Database system?
4. What is the role of Database Administrator ?
5. Disadvantage in File Processing System?
6. Describe the three levels of data abstraction?
7. Define the "integrity rules"
8. What is extension and intension?
9. What is Data Independence?
10. What do you mean by Data processing ?
11. Which part of the RDBMS takes care of the data dictionary? How
12. What do you mean by instance & schema ? Explain the difference between these.
13. What is the difference between Procedural DML and Non-Procedural DML ?
14. What is a view? How it is related to data independence?
15. What is Data Model?
16. What is E-R model?
17. What do you mean by Hierarchical model ?
18. What is an Entity?
19. What is an Entity type?
20. What is an Entity set?

21. What is a composite attribute? Give examples.
22. What is a single valued attribute? Give examples.
23. What is a multi-valued attribute? Give examples.
24. What do you mean by cardinality? What are different kinds of cardinalities ?
25. What is an Extension of entity type?
26. What is the difference between the strong entity set and weak entity set ?
27. Define subtype and supertype entities ?
28. Give example of following relationships :
    a. Many-to-One
    b. One-to-One
    c. One-to-Many
    d. Many-to-Many
29. What is an attribute?
30. What is a Relation Schema and a Relation?
31. What is degree of a Relation?
32. What is Relationship, Relationship set, and Relationship type?
33. What is degree of Relationship type?
34. What is SDL (Storage Definition Language)?
35. What is Data Storage - Definition Language?
36. What is DDL, DCL, and DML (Data Manipulation Language)?
37. What is VDL (View Definition Language)?
38. Consider the following tables:

    Employee (Emp_no, Name, Emp_city)

    Company (Emp_no, Company_name, Salary)

    i. Write a SQL query to display Employee name and company name.

    ii. Write a SQL query to display employee name, employee city ,company name and salary of all the employees whose salary >10000

    iii. Write a query to display all the employees working in ‘XYZ’ company.
39. What is Relational Algebra?
40. What are the unary operations in Relational Algebra?
41. Explain various operators used in relational algebra.

42. What do you mean by atomicity and aggregation?
43. Differentiate between Cartesian product and natural join operations used in relational algebra.
44. What are the primitive operations common to all record management systems
45. What is a primary key ?
46. Define foreign key ? How does it play a role in the join operation ?
47. What are various Data types in SQL ?
48. What do you mean by SQL ?What are the characteristics of SQL ?
49. Explain Triggers and its types with examples.
50. Distinguish between static and dynamic SQL.
51. What is meant by static SQL? How it differs from dynamic SQL?
52. How are the nulls represented in database system?
53. What are aggregate functions?
54. What is the purpose of group by clause in the SELECT statement?
55. What are views? How they are created?
56. What do you mean by integrity constraints ?
57. Which subdivision of SQL is used to put values in tables and which one to create tables ?
58. Differentiate between SQL commands DROP TABLE and DROP VIEW.
59. What is the difference between WHERE and Having Clause ?
60. Discuss the various type of join operations ? Why are these join required.
61. How are exceptions handled in PL/SQL? Give some of the internal exceptions' name
62. What are stored-procedures? And what are the advantages of using them.
63. What are cursors give different types of cursors.
64. What is normalization?
65. What are Armstrong rules? How do we say that they are complete and/or sound
66. Explain the codd's rules for relational database design.
67. Explain Functional dependency and Trivial functional dependency with examples.
68. Explain the term Distributed DBMS and Client-Server DBMS
69. Define the relational data model.
70. What is Functional Dependency?
71. What do you mean by redundancy ?How this can be avoided ?

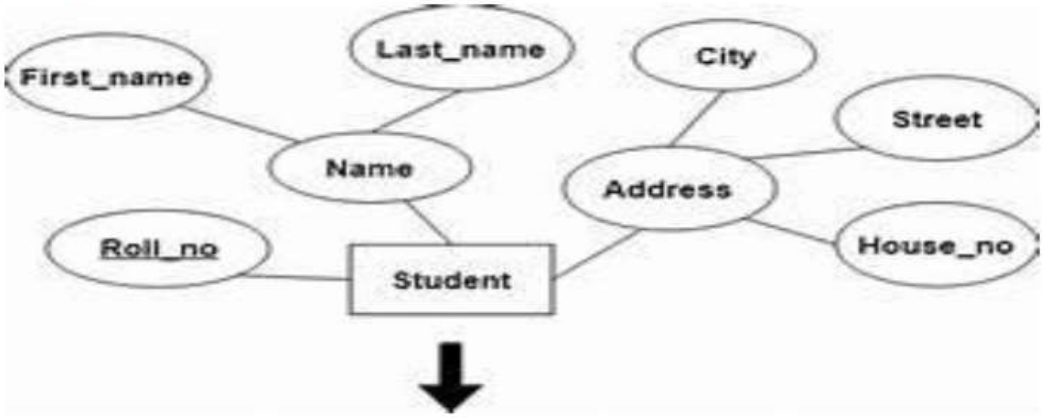
72. When is a functional dependency F said to be minimal?
73. What is Multivalued dependency?
74. What is Lossless join property?
75. What is Fully Functional dependency?
76. What is lossy decomposition?
77. What is transitive dependency?
78. What is 1NF, 2NF, 3NF and BCNF (Boyce-Codd Normal Form)?
79. Explain Closure of Set of Functional dependency and Closure of Attribute sets
80. Explain Canonical cover and Extraneous Attributes with examples.
81. What do you understand by dependency preservation?
82. What is the need of the normalization? Explain the first three steps involed in the normalization.
83. What are the different phases of transaction?
84. What are the ACID properties of a transaction?
    a. What do you mean by isolation? Why is it important? Give an example.
    b. What do you mean by consistency? Why is it important? Give an example.
    c. What do you mean by atomicity? Why is it important? Give an example.
    d. What do you mean by durability? Why is it important? Give an example.
85. List out the states of a transaction.
86. Discuss the immediate update recovery technique is both single and multiuser environment.
87. Explain the purpose of checkpoint mechanism. How often should checkpoints be performed
88. List and explain various types of specialized locking techniques used in DBMS
89. Why is concurrency control needed? Explain lost update, Inconsistent retrievals and Uncommitted dependency anomalies.
90. What is a deadlock ? How can a deadlock occur ? explain.
91. Briefly explain one deadlock prevention algorithm.
92. What if time stamping is used ? Explain briefly
93. What is two-phase locking and how does it guarantee serializability ?
94. Discuss the concurrency control mechanism in detail using suitable example.

95. Differentiate between Two phase locking and Rigorous two-phase locking.
96. How can deadlocks be avoided when using 2PL?
97. How Share and exclusive locks differ ?Explain.
98. How precedence graph can be used to detect deadlock ?
99. What is a system log ? What is the purpose of the system log in system recovery ?
100. What do you understand by distributed databases? Give the various advantages and disadvantages of distributed database management system.
101. What is database recovery? Why backups are important?
102. What are transaction logs?
103. What do you mean by rollback?
104. What is the difference between volatile and non volatile storage?
105. What are redo and undo logs?
106. What is a timestamp? State its advantages.
107. What is shadow paging? State its advantages.
108. What are the methods used to prevent the system from dead lock?
109. What is database recovery? Why backups are important?
110. Explain shadow paging recovery scheme in detail.
111. What is database? What is DBMS? Its functions and applications.
112. Disadvantage of File Processing System? Advantages of DBMS over File System?
113. Describe the three levels of data abstraction? Also explain the role of DBA?
114. What is Data Independence? What is a view? How it is related to data independence?
115. Explain SQL and all the Database Languages.
116. Describe Transaction Management with its state diagram and properties.
117. Classify database Management System with brief description about all.
118. Explain the three schemas Architecture with suitable diagram.
119. Discuss the overall Database structure with suitable diagram.
120. Define the terms:
    a) Data redundancy
    b) Data Consistency
    c) Data Integrity
    d) Data Isolation

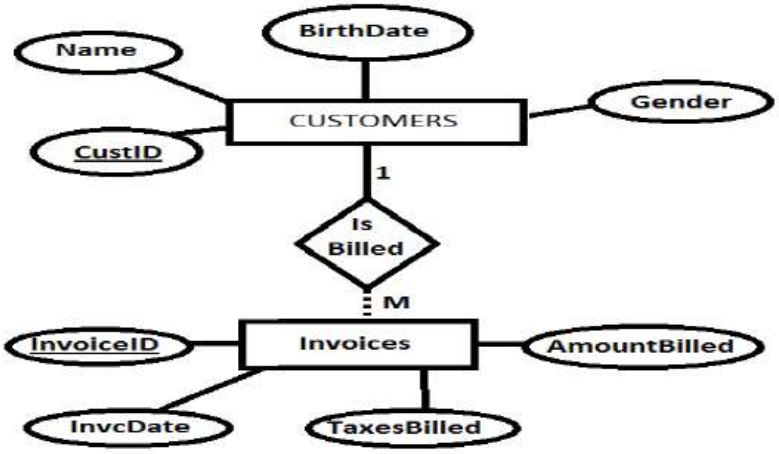
e) Instance & schema.

Problems on ER Model:

1. **What is the min no of tables required for the following ER Diagrams? Also make the coresponding Table with its attributes in the table.**

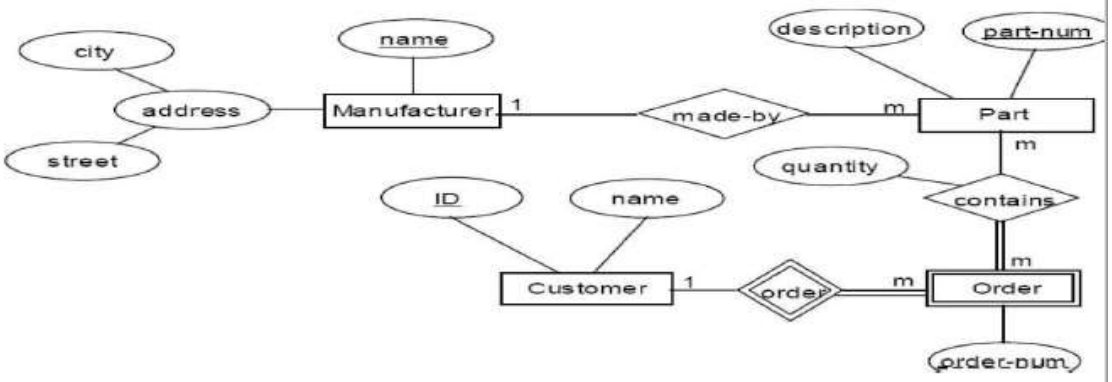


2. **What is the min no of tables required for the following ER Diagrams?**



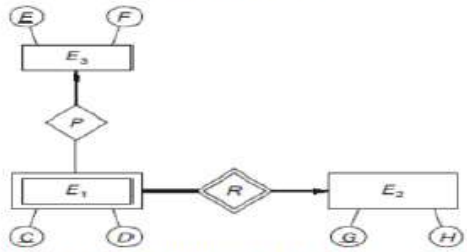
121.

3. **What is the min no of tables required for the following ER Diagrams?**



4. **What is the min no of tables required for the following ER Diagrams?**

Consider the following ER-diagram



What is the minimum number of tables are required to represent E_1, E_2, E_3, P, R ?

5. **What is the min and max no of tables required for the following ER Diagrams?**