

- Note:**
1. All questions are compulsory with internal choice.
 2. Draw neat diagrams wherever necessary.
 3. Figures to the right indicate full marks.
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Q.1 Answer the following (any FOUR) (20)

- (a) What is data model? Explain its types.
- (b) State and explain types of attributes with their notations.
- (c) Write a short note on client server architecture for DBMS?
- (d) List and explain different types of notations used in ER diagram.
- (e) State and explain types of level of abstraction in details.
- (f) Differentiate between DBMS and file systems?

Q.2 Answer the following (any FOUR) (20)

- (a) What do you mean by join? Explain Left outer join and Right outer join in details.
- (b) Explain subqueries in details with the help of examples.
- (c) Write a short note on Aggregate function used in my SQL.
- (d) Explain any five string function with the help of an example.
- (e) Explain different operations of Relational algebra with the help of an example.
- (f) List various Set operations of SQL with the help of an example.

Q.3 Answer the following (any FOUR) (20)

- (a) What are the roles of DBA?
- (b) Differentiate between 3NF and BCNF?
- (c) What are the different threats to the database?
- (d) Briefly explain lossless join decomposition?
- (e) What do you mean by views explain with the help of an example? State its advantages.
- (f) Explain in details Backup and Restore database in MySQL?

Q.4 Answer the following (any FIVE) (15)

- (a) Explain ALTER table command with proper example.
- (b) Define DBMS. State and explain in advantages of DBMS.
- (c) Explain any five math functions used in MySQL with example.
- (d) Write a short note on first normal form.
- (e) Explain different types of data types in MySQL?
- (f) Explain Primary key and Foreign key with suitable example.