



NOTE: ALL QUESTIONS ARE COMPUSORY

FIGURES TO THE RIGHT INDICATE FULL MARKS

EXPLAIN WITH ALGORITHM AND EXAMPLES WHEREVER NECESSARY

Q.1 ANSWER THE FOLLOWING (ANY THREE):

15

- A) Describe the architecture of Database system
- B) Explain the advantages of DBMS
- C) Explain types of relational database constraints
- D) Explain π operator in relational algebra
- E) Explain $-$ operator in relation algebra
- F) Explain join operation in relation algebra

Q.2 ANSWER THE FOLLOWING (ANY THREE):

15

- A) Draw an ER diagram for Library management system
- B) Draw an ER diagram for Music company
- C) Explain the various ERD symbols used to represent types of attributes
- D) Describe the uses of UML diagram
- E) How can you represent mapping cardinalities in ER diagram?
- F) What is generalization and specialization? Explain with the examples

Q.3 ANSWER THE FOLLOWING (ANY THREE):

15

- A) What are the properties of functional dependencies?
- B) Explain First Normal Form with the help of an example
- C) Describe BCNF with help of an example
- D) What is Decomposition? What are its types?
- E) What is Multivalued dependency? Explain with example
- F) Explain the advantages of Normalization in RDBMS

Q.4 ANSWER THE FOLLOWING (ANY THREE):

15

- A) What is DML? Explain various DML commands.
- B) Explain the use of Create command in SQL, with the help of examples
- C) Explain Alter command in SQL
- D) What are Aggregate function? What are its types?
- E) What are Views? What are its disadvantages?
- F) What are Triggers? How are triggers created?

Q.5 ANSWER THE FOLLOWING (ANY THREE):

15

- A) Describe ACID properties
- B) Explain view serializability
- C) What is concurrency control? Why is it needed?
- D) Explain LOCKED based protocol.
- E) Explain Validation based protocols
- F) What is a Deadlock? How is it prevented?