

22321

11819

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define the term Database Schema.
- (b) List 4 types of Database languages.
- (c) Define the term Data Model.
- (d) Define the term Foreign key.
- (e) Enlist components of database.
- (f) Draw and name 4 symbols used in ER diagram.
- (g) State any four characteristics of Database.

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2. Attempt any THREE of the following : **12**

- (a) Distinguish between file processing system and DBMS.
- (b) Describe object oriented data models.
- (c) Construct an E-R diagram for a car insurance company whose customers own one or more cars. Assume suitable attributes.
- (d) Describe the three levels of data abstraction with diagram.

3. Attempt any THREE of the following : **12**

- (a) Explain Integrity constraints with example.
- (b) Explain benefits and drawbacks of Denormalization.
- (c) Explain primary key and candidate key with example.
- (d) Explain advantages of centralized and distributed databases.

4. Attempt any THREE of the following : **12**

- (a) Describe the first normal form with its example.
- (b) Compare Hierarchical Database Model with Network Model.
- (c) Explain three level architecture of Database.
- (d) Explain client/server database system.
- (e) Explain various types of Relational constraints.

5. Attempt any TWO of the following :**12**

- (a) Consider relation R with five attributes L, M, N, O, P.

You have given following dependencies,

$$L \rightarrow M, MN \rightarrow P, PO \rightarrow L$$

- (i) List all keys for R.
- (ii) In what Normalized form R is ? Justify your answer.
- (b) Draw ER diagram for Banking system, to represent a customer has account scenario. Identify entities with their attributes and draw a diagram.
- (c) Consider a single table consisting following columns. Convert it into 2NF and 3NF. Table (Supplier_no, Supplier_name, Supplier_city, Order_no, Order_quantity, order_amount, product_code, product_name)

6. Attempt any TWO of the following :**12**

- (a) Consider 'student' database with appropriate details. Write a procedure to manipulate given database by adding, modifying and deleting records.
- (b) For each of following relationship indicate type of relationship ($l : l, l : m, m : m$)
- (i) Works in (a relationship between entities dept. and staff)
- (ii) Managers (a relationship between entities employee and Manager)

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(c) Draw Enhanced ER diagram for loan payment system. Consider following entities :

- (i) Loan (Loan_id, Loan_amount, Loan_date)
- (ii) Payment (Payment_id, Payment_date, Balance_amount)
- (iii) Personal Loan (Personal Loan_no, Interest rate)
- (iv) Home Loan (Home loan_no, Interest rate)

Show strong entity set, weak entity set, super class and sub class.
