22321

12425

03 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer 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) List the components of Database.

b) Define the following terms:

i) Attribute

ii) Data model

c) State weak and strong entity set.

d) List the types of Integrity constraints.

e) Define Normalization.

f) State the advantages of using database system.

g) Define the term Database schema.

Marks

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

a) Explain the functions of DBA. (Database Administrator)

b) Explain Network database model with help of example.

c) Explain different types of attribute.

d) Describe the working of detailed system architecture of DBMS.

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

a) Draw and explain client server architecture.

b) Explain ER diagram and its components.

c) Explain various operations performed with data manipulation language.

d) Explain various anomalies associated with RDBMS?

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

a) Differentiate between Hierarchical and Network Database Model. (Any four)

b) Describe various constraints of Generalization and Specialization.

c) Write any four Codd's rules of RDBMS.

d) Explain the benefits of Denormalization.

e) Explain domain constraints with example.

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

a) Consider a single table (Supplier_no, Supplier_name, Supplier_city, order_no, order-quantity, order_amount, product_code, product-name) The table consisting of following Columns. Convert it into 2NF and 3NF.

b) Construct an ER diagram for a hospital with a set of patients and the set of medical doctors associated with each patient a record of various test and examination conducted.

c) We are given relation R with attributes A, B, C, D, E, F and the FD's as below. Find and explain which Armstrong's Axioms can be applied here to find closure.

$A \rightarrow BC \quad B \rightarrow EC \quad D \rightarrow EF$

Marks

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) Drawn E-R diagram and reduce it to relational database model for a university database for scheduling of classrooms for final exams. This database could be modelled using entities as exam. (course-name, section-number, room-number, time;

Course (name, department, C-number),

room (r_number, capacity, building),

Entity section is dependent on course.

c) Consider a employee table having details emp_id, emp_name, manager_id and department table having details such as Did and Dept_name. By considering these two tables. Show foreign key violations in SQL and also explain referential integrity constraints.