

22321

24225

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 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) Enlist any four components of Database.
  - b) Compare client/server database system with distributed database system. (Minimum two points each)
  - c) Define Foreign key with example.
  - d) Classify the types of constraint.
  - e) List any four disadvantages of file processing system.
  - f) Write syntax for 'Create Table' command.
  - g) State the use of Normalization.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain 3-tier architecture of Database system with the help of diagram.
  - b) Distinguish between Network model and Hierarchical model. (Minimum four points each)
  - c) Explain Generalization with example.
  - d) Describe the concept of Data integrity in detail.
- 3. Attempt any THREE of the following:** **12**
- a) Explain any four Codd's rule of RDBMS.
  - b) State the types of normal forms and explain 2NF with example.
  - c) Explain different types of attributes with it's symbol and example.
  - d) Describe parallel Database system.
- 4. Attempt any THREE of the following:** **12**
- a) Explain functional Dependency with example.
  - b) Draw and explain object - oriented database model.
  - c) Explain different database languages with example.
  - d) Explain Referential integrity with example.
  - e) Describe centralized database system with example.
- 5. Attempt any TWO of the following:** **12**
- a) Consider following relation subject (subject-name, subcode, department, staff, textbook)  
Convert it into 1NF and 2NF.
  - b) Draw E-R diagram for library management system in which entities are Book, members, suppliers etc. Assume suitable data and display relationship among given entities.
  - c) Consider given relation R with P, Q, R, S, T attributes.  
You have given following dependencies,  
 $P \longrightarrow Q, QR \longrightarrow T, TS \longrightarrow P$ 
    - i) List all keys for R
    - ii) In what Normalized form R is? Justify your answer.

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

- a) Consider following schema patient (patient)id, name, DoB, disease\_name)

Write procedure to manipulate given Database by adding, modifying and deleting records.

- b) Draw Enhanced E-R diagram for Information Technology department management system.

- c) Consider following schemas –

i) employee (emp\_id, emp\_name, dept\_no, salary)

ii) Department (dept\_no, dept\_name, location)

Draw and explain parent-child relationship for above schemas and find out foreign key with justification.

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