**53 (EC 813) DBMS**

## 2017

## DBMS

Paper : EC 813 (Back)

*Full Marks : 100*

Time : Three hours

### *The figures in the margin indicate full marks for the questions.*

*Answer **any five** questions.*

1.  (a)  Define first, second and third normal forms. Differentiate between primary key and superkey with the help of proper example.                6+4=10

    (b)  What is Cardinality Ratio ? Discuss its various types with example.
                 2+8=10

2.  (a)  Explain full functional dependency and transitive dependency. What is a candidate key ?                8+2=10

(b) What is a Transaction ? What are the problems associated with concurrent transaction processing ?

2·5+7·5=10

3. (a) Describe three-schema architecture. What is data independence ?

6+4=10

(b) Explain various types of locks used to achieve concurrency control.

10

4. (a) Draw an ER diagram for Airline Reservation System. 10

(b) Explain the state transition diagram of a transaction. 6

(c) Discuss about the different types of database end users. 4

5. (a) Explain two-phase locking protocol. What are the ACID properties of a transaction ? 6+4=10

(b) What is deadlock ? Discuss *any* deadlock prevention scheme.

2·5+5·5=8

(c) What is Starvation ? 2

6. (a) What are the characteristics of a database management system ? Explain. 10

(b) Describe optimistic concurrency control technique. 10

7. Write short notes on the following :

5×4=20

(i) DDL and DML

(ii) Database attributes

(iii) Foreign Key

(iv) Binary and Ternary Relationship.