C 26811 (Pages : 2) Name.....

Reg. No.....



# SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, MAY 2012

## CS/IT/PTCS 09 604—DATABASE MANAGEMENT SYSTEMS

(2009 admissions)

Time : Three Hours Maximum : 70 Marks

### Part A (Short Answer Questions)

*Answer* **all** *questions in one* **or** *two sentences.*
*Each question carries* 2 *marks.*

1. Who are database administrators ? List out their roles.
2. List any *four* file operation.
3. Define Boyce codd normal form. Give example.
4. What is ACID property ?
5. Can you retrieve personal data from statistical databases ? If yes, how ?

(5 × 2 = 10 marks)

### Part B (Analytical/Problem Solving Questions)

*Answer any* **four** *questions.*
*Each question carries* 5 *marks.*

6. Explain the architecture of database management systems.
7. How does a DBMS differ from file system ? Explain with examples.
8. Discuss about the techniques used for placing file records on disks.
9. What are views ? With examples, explain updataable and nonupdatable views.
10. How is database recovered from inconsistent state using ARIES algorithm ?
11. Discuss in detail about the access control mechanism in database.

(4 × 5 = 20 marks)

### Part C (Descriptive/Analytical/Problem Solving Questions)

*Answer* **all** *questions.*
*Each question carries* 10 *marks.*

12. (a) Consider an online auctiondatabase system in which members (buyers and sellers) participate in the sale of items. The data requirements for this system are summarised as follows :

- The online site has members who are identified by a unique member id and are described by an email address, their name, a password, their home address, and a phone number.
- A member may be a buyer or a seller. A buyer has a shipping address recorded in the database. A seller has a bank account number and routing number recorded in the database.

**Turn over**

- Items are placed by a seller for sale and are identified by a unique item number assigned by the system. Items are also described by an item title, an item description, a starting bid price, bidding increment, the start date of the auction, and the end date of the auction.
- Buyers make bids for items they are interested in. A bidding price and time of bid placement is recorded. The person at the end of the auction with the highest bid price is declared the winner and a transaction between the buyer and the seller may proceed soon after.
- Buyers and sellers may place feedback ratings on the purchase or sale of an item. The feedback contains a rating between 1 and 10 and a comment. Note that the ratings are placed on a completed transaction by the buyer or seller of the item in the transaction.

Design an Entity-Relationship diagram for the auction database and convert it into relations.

*Or*

(b) Explain the various data models with an example.

13. (a) Describe about the charactersitics of magnetic disk and magnetic tape storage devices.

*Or*

(b) Discuss about the following indexing techniques :

(i) B tree indexing.

(ii) B' tree indexing.

14. (a) Explain the following with examples :

(i) Functional dependency. (ii) Transitive dependency.

(iii) Multivalued dependency. (iv) Join dependency.

*Or*

(b) Explain the various normal forms and examples for each.

15. (a) Explain the problems incurred during concurrency in transactions and suggest the methods to overcome it.

*Or*

(b) Explain about the various security issues in statistical databses.

(4 × 10 = 40 marks)