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53 (EC 813) DBMS

2018

DBMS

Paper : EC 813

Full Marks : 100

Time : Three hours

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

Answer any five questions.

1. (a) Define various normal forms with proper examples. 10
(b) Establish the importance of Role Names. What are recursive relationships? 5+5=10
2. (a) Describe three-schema architecture and data independence. 7+5=12
(b) Explain weak entity type, owner entity type, identifying relationship and partial key giving proper examples. 8

Contd.

3. (a) Discuss various cardinality ratios. Give its definition and cite with proper example. 10

(b) Draw an F-R diagram of your institute database considering *any one* of the mini-world aspects of your choice. 6

(c) What are the ACID properties of a transaction? 4

4. (a) Consider the following relation schema: $2 \times 4 = 8$

employee (emp_id, emp_name, age, salary, dept_no).

dept (dept_no, dept_name, mgr_id, dept_location).

project (proj_no, proj_name, dept_no, p_location).

Write SQLs to:

(i) Get department names for each employee. 6

(ii) Get the salary drawn by each manager. 6

(iii) Retrieve employee details, who draw salary more than 50,000/-.

(iv) Retrieve project detail and the respective department name. 8

(b) Discuss about problems associated with deadlock and starvation. Write about *any* deadlock prevention scheme. $6+6=12$

5. (a) What is concurrency control? What are the various locks used to achieve this? Explain and differentiate. $2+8=10$

(b) Discuss about the various characteristics of DBMS approach. 10

6. (a) Define the terms with examples:

(i) Entity, (ii) Attribute, (iii) Primary key, (iv) DDL and (v) DML. $2 \times 5 = 10$

(b) What do you mean by degree of a relationship? Discuss about binary and ternary relationships with proper examples. $2+8=10$

7. (a) Discuss the optimistic concurrency control techniques. 6

(b) What is a two-phase locking protocol. 6

(c) Draw a transaction state diagram and discuss the typical states that a transaction goes through during execution. 8