

A 1311

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Sixth Semester

Mechatronics Engineering

IF 254 — DATABASE MANAGEMENT SYSTEM

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. With an example explain a derived attribute.
2. What is data dictionary?
3. Explain Natural Join.
4. What are primary key constraints?
5. What are the advantages of distributed database?
6. What is a serializable schedule?
7. What are the differences between valid time and transaction time?
8. What are the different types of multimedia sources?
9. Define the term OLAP and ROLAP.
10. What is the difference between persistence and transient object?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss the main characteristics of the database approach and how it differs from traditional file systems.

Or

- (b) Illustrate the different component modules of a DBMS and their interactions.

12. (a) List the operations of relational algebra and the purpose of each.

Or

- (b) Consider the Employee table : (4 × 4 = 16)

Employee (E No, E-name, Company-name, Salary)

- (i) Find the average salary each company.
 - (ii) Find the company which is giving highest average salary.
 - (iii) Find the employees whose salary is higher than the average salary of their company.
 - (iv) List the companies where more than 200 employees are working.
13. (a) What is the two phase locking protocol? How does it guarantee serializability? Why is strict or rigorous two phase locking often preferred?

Or

- (b) Construct B+ tree with inserting the following key elements (order of the tree is 3)

15, 3, 5, 25, 40, 4, 14, 52, 60, 11

14. (a) (i) How are multimedia sources indexed for content base retrieval? (8)
- (ii) Explain about differences between row level and statement level active rules with suitable example. (8)

Or

- (b) (i) Explain the principles of clausal form and Horn clauses in deductive databases. (8)
- (ii) Illustrate the basic concept of interpretations of rules for proving a new fact. (8)

15. (a) (i) How do regular inheritance, multiple inheritance and selective inheritance differ? (8)
- (ii) Discuss the concept of encapsulation and tell how it is used to create abstract data types. (8)

Or

- (b) (i) What are association rules as a type of knowledge? Give a definition of support and confidence and use them to define an association rule. (10)
- (ii) What are the goals that data mining attempts to facilitate? (6)
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