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B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Third/Fifth/Eighth Semester

Computer Science and Engineering

CS 6302 — DATABASE MANAGEMENT SYSTEMS

(Common to Mechanical and Automation Engineering, Mechatronics Engineering, Information Technology)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the desirable properties of decomposition?

2. Distinguish between key and super key.

3. What is a query execution plan?

4. Which cost component are used most often as the basis for cost function?

5. What is serializable schedule?

6. What type of locking needed for insert and delete operations?

7. Define replication transparency.

8. State the function of data marts.

9. Define support and confidence.

10. Distinguish between threats and risks.

PART C — (1 × 15 = 15 marks)

16. (a) Consider the relation schema given in Figure 1. Design and draw an ER diagram that capture the information of this schema. (5)

Employee (empno, name, office, age)

Books (isbn, title, authors, publisher)

Loan (empno, isbn, date)

Figure 1.

Write the following queries in relational algebra and SQL.

(i) Find the names of employees who have borrowed a book published by McGraw-Hill. (5)

(ii) Find the names of employees who have borrowed all books published by McGraw-Hill. (5)

Or

(b) Trace the results of using the Apriori algorithm on the grocery store example with support threshold $s = 33.34\%$ and confidence threshold $c = 60\%$. Show the candidate and frequent itemsets for each database scan. Enumerate all the final frequent itemsets. Also indicate the association rules that are generated and highlight the strong ones, sort them by confidence.

Transaction ID	Items
T1	HotDogs, Buns, Ketchup
T2	HotDogs, Buns
T3	HotDogs, Coke, Chips
T4	Chips, Coke
T5	Chips, Ketchup
T6	HotDogs, Coke, Chips