

Exam.Code:0915

Sub. Code: 6777

1078

B.E. (Computer Science and Engineering)

Third Semester

CS-302: Database Systems

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following in brief:

- a) What is Query Tree?
- b) Explain atomicity of transaction.
- c) Define threat with example.
- d) What are clustered indexes? List its advantages and disadvantages.
- e) What is join dependency? How it is related to normalization?
- f) Define deferred update. Give example.
- g) Difference between cursors and triggers.
- h) Define cardinality in ER diagram. Give example.
- i) List all the aggregate operators in SQL.
- j) Define digital signatures. (10x1)

UNIT – I

II. a) Explain Query Optimization.

- b) Write an SQL query to retrieve the details of employee drawing second largest salary from the *relation schema*: employee (Emp_no, Emp_name, Designation, Salary). (5,5)

III. a) Define Database and DBMS. What are the advantages of using database over file management system?

- b) Explain the notational conventions used in ER Model. (5,5)

IV. a) What is serializability? What are its types? What is serializable schedule? Give example.

- b) Explain the domain constraints and Referential integrity constraints with examples. (5,5)

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(2)

UNIT – II

- V. a) Discuss about different types of failures.
b) What is 2-phase locking protocol? How does it guarantee serializability?
- VI. a) What are deferred modification and immediate modification technique for recovery? How does recovery takes place in case of failure in these techniques?(5)
b) Write TRC and DRC using table *loan* (*loan_no*, *amount*, *balance*) for the following query. Find all loan numbers/or loans with an amount greater than \$ 1200. (2,3)
- VII. a) What are the various kinds of concurrency anomalies that can occur? Explain with example.
b) CREATE a table using existing table with records and also without records.
c) Using ALTER command to add a PRIMARY KEY, FOREIGN KEY and MODIFY a column. (5,2,3)

x-x-x