PVP 14

Code: IT4T2

II B.Tech II Semester Regular/Supplementary Examinations
April 2019

DATABASE SYSTEMS
(INFORMATION TECHNOLOGY)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks
11 x 2 = 22 M

1. a) List out various applications of the data base systems.
   b) What are the characteristics of the object based data model?
   c) Define Tuple Relational Calculus.
   d) List various basic aggregate functions in SQL.
   e) What is the purpose of trigger in SQL?
   f) Define Weak entity set in ER Model.
   g) Define Functional Dependency.
   h) What is the necessity of normalization in data base?
   i) Define serializability of a schedule.
   j) What are ACID properties?
   k) Define candidate key and super key.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Discuss about various data base languages with examples. 8 M

b) Explain various components of the data base architecture with neat diagram. 8 M

3. a) Compare and contrast Tuple Relation Calculus and Domain Relation Calculus in detail. 8 M

b) Construct the following SQL queries for the given relational database schema. 8 M

branch(branch_name, branch_city, assets)
customer (customer_name, customer_street, customer_city)
loan (loan_number, branch_name, amount)
borrower (customer_name, loan_number)
account (account_number, branch_name, balance)
depositor (customer_name, account_number)

i) Find all customers of the bank who have an account but not a loan.

ii) Find the names of all customers who live on the same street and in the same city as "Smith".

iii) Find out the total sum of all loan amounts in the bank.

iv) Find the names of all branches that have assets greater than those of at least one branch located in "Brooklyn".

4. a) Explain various types of joins in SQL with examples. 8 M

b) Discuss following E-R features with neat diagrams 8 M

i) Generalization
ii) Specialization
iii) Aggregation
iv) Binary relationship sets

5. a) Explain how 3NF and BCNF can remove redundancy from the relations? 8 M

b) Discuss Multi valued dependency and 4NF in detail. 8 M

6. a) Explain two phase locking protocol in detail. 10 M

b) Discuss briefly about failure classification system. 6 M