P-1542

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S.E. (Information Technology)
DATABASE MANAGEMENT SYSTEM
(2019 Pattern) (Semester - IV) (214452)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

    1)   *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*

    2)   *Neat diagrams must be drawn wherever necessary.*

    3)   *Figures to the right side indicate full marks.*

    4)   *Assume suitable data, if necessary.*

Q1) a) Describe Circumstances under which you would choose to use Embedded SQL than normal SQL or only a general purpose programming Language.   **[4]**

    b) Differentiate between :   **[6]**

        i)   Trigger & stored procedure

        ii)   Embedded SQL and Dynamic SQL

    c) Consider the following relations :   **[8]**

        Departments(Department_id, Department_name, manager_id, Location_id) Employees(Employee_id, Employee_name, mphone_number, Hire_Date, Job_Id, Salary, commission_PCT, manager_Id, Department_Id)

        Write SQL queries for the following :

        i)   Show the name, job, salary and commission of those employee who earn commission. Sort the data by the salary in descending order.

        ii)   Show the department names, locations, names, job titles and salaries of employees who work in location 1800.

P.T.O.

iii) How many employees have a name that ends with an "n"?

iv) Show the names and locations for all departments and the number of employee working in each department. Make sure that departments without employees are included as well.

OR

Q2) a) Consider the relational database **[8]**

supplier(sid, sname, address)

parts(pid, pname, color)

catlog(sid, pid, cost)

Write SQL queries for the following :

i) Find the name of supplier who supply some red parts.

ii) Find the name of all part whose cost is more than Rs. 250.

iii) Find the name of all part whose color is green.

iv) Find the name of all part supplied by each supplier.

b) Explain need for following : **[4]**

i) View

ii) Null values

c) Write note on : **[6]**

i) Set operations in SQL

ii) Aggregate Functions in SQL

Q3) a) What are the measure of query cost? **[4]**

b) Explain 1st, 2nd, 3rd normal form with example. **[6]**

c) What do you mean by normalization? Explain different anomalies.**[7]**

OR

Q4) a) Compare BCNF and 3NF. **[4]**

b) Which are different ways of evaluation of expression? Explain any one with example. **[6]**

c) Define functional dependency. List various types of functional dependency. Explain any one type of functional dependency. **[7]**

Q5) a) Give test for conflict serializability. Check whether following schedule is conflict serializable. **[8]**

T1	T2
Read(A)	
Write(A)	
	Read(A)
	Write(A)
Read(B)	
Write(B)	
	Read(B)
	Write(B)

b) What is concurrency control? Explain time stamping method. **[4]**

c) When do deadlock happens? How to prevent them? **[6]**

OR

Q6) a) Check whether given schedule is view serializable. **[6]**

T1	T2	T3
Read(Q)		
	Write(Q)	
		Write(Q)
Write(Q)		

b) Explain the concept of Transaction. Describe ACID properties of transaction. **[8]**

c) Explain Deferred database modification. **[4]**

Q7) a) State which database system architecture you will prefer for following application- support your answer with brief explanation : **[6]**

   i) Railway Reservation System.

   ii) Search Engine

   iii) College admission system

b) List and Explain any one Architecture of Parallel databases with neat diagram. **[6]**

c) What are the benefits of NOSQL databases. **[5]**

OR

Q8) a) Write a note on SQL Lite database. **[6]**

b) Explain Architecture of Distributed database system. **[6]**

c) Explain two-tier and three-tier architecture. **[5]**

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