2/8/23.

Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri(West),Mumbai 400058-India
(An Autonomous Institute Affiliated to University of Mumbai

Special Examination

Max. Marks: 100
Class: FYMCA
Course Code:MC502
Course: Database Management System

Duration:3
Semester: I
Date: 10/8/23
Time: 10 to 1

Instructions:
(1) All Questions are Compulsory.
(2) Draw neat diagrams.
(3) Assume suitable data if necessary.

No	Question	Max. Marks	CO	BL
Q1 A	Design an ER diagram for Gym Management System by mentioning all the steps. **OR** Design an ER diagram for Bank Management System by mentioning all the steps.	10	1	3
Q1 B	Apply Normalization concept to identify the highest normal form of following functional dependencies by enlisting all the steps. R(A,B,C,D,E) F = (A --> B, B --> C, C --> D, D --> E, E -->A)	10	2	3
Q2 A	Illustrate the concept of Table Inheritance with the help of an example. **OR** Illustrate Distributed Database types with the help of an example.	10	4	2
Q2 B	Test whether following is conflict serializable schedule or not? Justify your answer. S: R1(A), W1(A), R2(A), R2(B), W1(B), R2(A), W1(A), R2(B)	10	3	4
Q3 A	Illustrate the concept of Discretionary Access Control with the help of an example.	10	4	2
Q3 B	Illustrate the use of partitioning. Show the output for Round Robin and Hash Partitioning for the following data by considering Empid as a key value. Assume that we have 3 processors and 3 disks.	10	4	2

Empid	Ename	Salary
101	Raj	10000
102	Rahul	20000
103	Ramesh	30000
104	Suresh	45000
110	Sheen	50000
111	Ritika	88000
112	Vaidehi	90000

<table>
<tr><td>Q4
A</td><td>Apply decomposition property on following relation and identify whether the following relation is lossless or lossy.
R(A,B,C) is divided into R1(A,B) and R2(B,C)
R(A,B,C) =
<table><tr><th>A</th><th>B</th><th>C</th></tr><tr><td>1</td><td>1</td><td>1</td></tr><tr><td>2</td><td>1</td><td>2</td></tr><tr><td>3</td><td>2</td><td>1</td></tr><tr><td>4</td><td>3</td><td>2</td></tr></table></td><td>10</td><td>2</td><td>3</td></tr>
<tr><td>Q4
B</td><td>Test whether following transaction follows Two phase locking protocol or not? Justify your answer.
Lock-x(A), Read(A), Write (A), Lock-x(B), Read(B), Write(B), Unlock(A), unlock(B)</td><td>10</td><td>3</td><td>4</td></tr>
<tr><td>Q5
A</td><td>Consider the Company database given below. The primary keys are underlined and the data types are specified:
Emp (eid : number, ename : varchar2, esal : number(10,2), edesg : varchar2)
Dept (did : number, dname : varchar2, dloc : varchar2)
Works_for(empid : number, deptid : number)
a) Create the above tables by properly specifying the primary keys and the foreign keys and named constraints.
b) Enter atleast two tuples for each relation.
c) Write a SQL command to display the employee details whose employee id is 101.
d) Write a SQL command to truncate table Emp.
e) Write a SQL command to drop primary keys of Emp and Dept tables.</td><td>10</td><td>5</td><td>3</td></tr>
<tr><td>Q5
B</td><td>Write a PL/SQL trigger that will execute when change in the salary occurs.</td><td>5</td><td>6</td><td>3</td></tr>
<tr><td>Q5
C</td><td>Write a PL/SQL function to find the number of employees for each department.</td><td>5</td><td>6</td><td>3</td></tr>
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