Database and Systems and Web_Test 2

Test2 Examination-2020-21
B. Tech-IInd Year
Course Title: Database Systems and Web
Course Code: 15B11CI312
Maximum Marks: 20
Maximum Time: 01 Hr

Note:
1. This is a pen-paper mode examination, Answers are to be written in your own handwriting on the blank sheets in continuation with the solution of the previous question. There should be no blank space between answers of two consecutive questions.
2. Write your Name, Enrolment Number, Batch, Subject Name, Subject Code on the the first page. Further write your Name, En. No. and page numbering on subsequent pages compulsorily.
3. Answer should be uploaded collectively at the end of the Examination.
4. Save the T2 Answer script file with the name as “studentenroll_ studentname_Batch”.

* Required

Student Information

Please enter the following details:

1. Student Name *

2. Student Enrollment No. *

3. Student Batch *

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4. Student Email id *

5. Password *

Section 1: Short Answers Questions (Marks 10)

1. [CO4] (1 Marks) Which operator in relational algebra is used as a vertical partition of the relation into two relations: one has the needed columns and contains the result of the operation, and the other contains the discarded columns? Write the syntax.

2. [CO4] (2 Marks) By default, duplicates are eliminated in RA. Write one case when duplicates are retained.

3. [CO4] (1 Marks) Consider a relation Student (Student_ID, Name, Gender, Course_ID, Course_Name). Write a relational algebra expression to list Student_ID and Name of all the female students who have opted for all the courses opted by Student_ID = 1234.

4. Consider the Driving School Database which contains following relations:

STUDENT(SNAME, CLASS_NO, TH_MARKS, DR_MARKS)
STUDENT_DRIVING_TEACHER(SNAME, DR_T_NAME)
TEACHER_THEORY_CLASS(CLASS_NO, TH_T_NAME)
TEACHER_VEHICLE(DR_T_NAME, LICENSE_NO)
VEHICLE(LICENSE_NO, MAKE, MODEL, YEAR)

I. [CO4] (1-Marks) Write the relational algebra expression to find the list of teachers who teach theory and give driving license on all the vehicles.
II. [CO4] (3-Marks) Find the pairs of students satisfying the following conditions:
ρ (R1, STUDENT)
ρ(R2, STUDENT),
ρ(RD1, STUDENT_DRIVING_TEACHER),
ρ(RD2, STUDENT_DRIVING_TEACHER)

πR1.SNAME,R2.SNAME (σR1.TH_MARKS=R2.TH_MARKS ^ R1.SNAME!=R2.SNAME(R1×R2)) ∩ πR1.SNAME,R2.SNAME(σR1.TH_T_NAME != R2.TH_T_NAME ^ R1.SNAME != R2.SNAME(π SNAME, TH_T_NAME(R1 ⋈ TEACHER_THEORY_CLASS)) × π SNAME, TH_T_NAME(R2 ⋈ TEACHER_THEORY_CLASS))) ∩ πR1.SNAME,R2.SNAME(σR1.DR_MARKS=R2.DR_MARKS ^ R1.SNAME!=R2.SNAME(R1×R2)) ∩ πRD1.SNAME,RD2.SNAME(σRD1.DR_T_NAME=RD2.DR_T_NAME ^ RD1.SNAME != RD2.SNAME (RD1 × RD2))

III. [CO4] (2-Marks) Write the equivalent SQL query of relational algebra expression mentioned in II.

Section 2: Long Answers Questions (Marks 10)

Q.1 [CO4] (5 Marks) xyz is an IT multinational company with more than 50,000 employees across the globe. Their HR have automated system to track the presence of employees and maintain their salaries as well through the system. Create a stored program which can help the HR of xyz company to get the number of days when employees were present to calculate their salaries between two dates. Also, determine the number of employees from the output where employee name ends with 't'.

Employee(eid, ename, gender, age),
Attendance(eid, date, status) // value of status will be 'p' for present/'a' for absent,
Salary(eid, salperday)

And the output should be in the format
Emp_id: Emp_name: number of days he is present: totalsalary

Q.2 ABC is an orthopedic clinic in the city center whose footfall is more than 100 patients per day. The clinic has a standard operating procedure for registering a patient on his/her arrival. As soon as a patient arrives he/she registers himself on the registration desk and then he/she gets a token number which defines the sequence of his consultation to the doctor.
I. [CO4] (3- Marks) Being a database coder you need to write the 'after Insertion trigger' which generates the token number for the patient in the Token table. Each day token number should start with number 1.
The schema of the database is
Patient_details(PID int, pname varchar(10), pcity varchar(15), pdob date, pgender char(1), registration_date date)
Token(PID int, registration_date date, token_no int) // PID reference to PID attribute of Patient_details
II. [CO4] (2- Marks) After some days doctor realized that for four days he doesn't want to use system-generated token number. How will you temporarily stop the working of the trigger? You don't have the option of DROP TRIGGER.

Upload your Answerscript

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6. Please name the file as studentname_Studentenrollno_batch. Submit the file in pdf format. *

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