INFORMATION SCIENCE AND ENGINEERING

DBMS ACTIVITY

TEAM NUMBER:

QUESTION 1:

Consider the following database , where primary keys are underlined.
Given an expression in the relational algebra to express each of the
following queries:
employee(ssn, name, dno, salary, hobby, gender)
department(dno, dname, budget, location, mgrssn)
works_on(ssn, pno)
project(pno, pname, budget, location, goal)
i)List all pairs of employee and project no they work on.
ii)List out department number, department name, department budget
iii)List out project that Raj Yadav works on by project name.
iv)List out name of employee along with ssn working on kaiga project
v)List out department that have its location in bangalore

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QUESTION 2:

Supplier (Sid, sname, status, city)
Parts (Pid, pname, color, weight, city)
SP(Sid, Pid, quantity)
Answer the following queries in SQL,
i) Find name of supplier for city= Delhi
ii)Find suppliers whose name start with 'AB'
iii) Find all suppliers whose status is vendor.
iv)Find sid of supplier who supplies 'red' part in city pune.
v)count number of supplier who supplies 'red' part

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QUESTION 3:
Consider the following relational database schema consisting of the four
relation schemas:
passenger (pid, pname, pgender, pcity)
agency (aid, aname, acity)
flight (fid, fdate, time, src, dest)
booking (pid, aid, fid, fdate)
Answer the following questions using relational algebra queries;
i)list the name of passenger travelling through jet agency
ii)Find the passenger names for passengers who have bookings on at least one
flight.
iii)Get the details of flights that are scheduled on both dates 01/12/2020 and
02/12/2020 at 16:00 hours
iv)Find only the flight numbers for passenger with pid 123 for flights to Chennai
before 06/11/2020.
v)list the name of passenger who are travelling to banglore

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QUESTION 4:
Consider the following Movie database:
Movie (Title, director, Mov_year, Rating,act_id)
Actors (act_id, Actor, Age)
Acts(Actor_name, title)
Directors(Director, dir_age)
Write the following queries in relational algebra on the database given:
i) Find movies made by Hanson after 1997
ii) Find director " Coen's" movie with actor " McDormand"
iii) Find(director, actor) pairs where the director age is greater than 40 and
actor age is greater than 30
iv)Find the name of actors working with director "maxwell"
v)Find all movie released after 2000 but before 2005

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QUESTION 5:

Consider the following relations for a database that keeps track of student
enrolled in courses and the books adopted for each course

STUDENTS (Name , Major, b date)

COURSE(Courseno, Cname, dept)

ENROLL(ssn, Courseno, Quarter, grade)

BOOK_ADOPTION(Courseno, Quarter, book_isbn)

TEXT(book_isbn, book_title, Publisher, Author)

Write the following queries in relational algebra on the database schema

i)List the number of courses taken by all students named John smith.

ii) List name of students enrolled in winter quarter with major cs.

iii)List any department that has books published by Pearson publishing

iv)List out all the names of the student who have taken cname "dbms" and major="cs"

v)List out all the books title associated with major "IS"

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QUESTION 6:
Consider following databases
reserves(sid, bid, day)
sailors (sid, sname, rating, age)
boats (bid,bname,color)

i)Find the names of sailors who have reserved boat number 103)

ii)Find the id of sailors with age over 20 who have not reserved red boat

iii) Find the names of sailors who have reserved at least one boat

iv)Find the names of sailors whose age is greater than 30

v)Find all the sailors who have reserved boat on both days 11/11/2022 and 12/11/2022

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QUESTION 7

Consider following Schema and represent given statements in relation algebra form

Branch(branch_name, branch_city)

Account(branch_name, acc_no, balance)

Depositor (customer _name, acc_no)

i) Find out list of customer who have account at "abc" bank

ii) Find out all customer who have account in Ahemedabad city and balance is greater than 10,000

iii) Find out total number of accounts at abc bank

iv)Find all the customer name who have minimum balance at "abc" bank

v)State name of customer who have account at "corporation bank" with city located in pune

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QUESTION 8:

Consider following relational database, where the primary keys are underlined. Give an expression in
the relational algebra to express each of the following queries:
Course(course_id, title, dept_name, credits)
instructor (id, name, dept_name, salary)
section(course_id, sec_id, semester, year, building, room no, time_slot_id)
teaches (id,course_id, sec_id, semester, year)
i) Find the names of all instructors in the physics department.
ii) Find the names of all instructors in Com, Sci, department together with course titles of all the courses that the instructors teach.
iii) Find the teacher name who teaches for 3rd semester
iv)Find the students who are in department information science and taught by instructor "Sneha"
v)Find the teacher who has time_slot_id 10 for 5th semester