CS315: Quiz 1

Marks = 20; Time = 15 minutes

31st January, 2023

Roll: **Name:** **Seat:**

There are 4 questions in 2 pages. Answer in the question paper itself and return.
Write **relational algebra queries**.

Q1: [5 marks] Consider the following relation, where the primary key is underlined.

Flights(fno, src, dst, dep, arr)

List all possible connecting flight number pairs from one city to another, having one stop and *proper* flight arrival and departure timing.

Q2: [5 marks] Consider the following database, where primary keys are underlined, and foreign keys are italicized.

Branch(bcode, bname, city, assets)
Account(ano, *bcode*, balance)
Loan(lno, *bcode*, amount)

Customer(cid, cname, city)
Depositor(*cid, ano*)
Borrower(*cid, lno*)

Find ids of customers who have both an account and a loan.

Q3: [5 marks] Consider the following database, where primary keys are underlined, and foreign keys are italicized.

Course(code, title, *ctype*, webpage)
Coursetype(ctype, *dept*)
Faculty(fid, name, *dept*, designation)
Department(deptid, name)
Semester(yr, half)
Offering(*coursecode, yr, half, instructor*)
Student(roll, name, *dept*, cpi)
Program(*roll*, ptype)
Registration(*coursecode, roll, yr, half, gradecode*)
Grade(gradecode, value)

For each course code, find the year when it was offered for the first time, and the instructor code who offered that.

Q4: [5 marks] Use the same schemas from the previous question.

Find students who took a course with an instructor having the same name.