Quiz1
Database Systems
CE 373/ CS 355 (L5)

Fall 2023

Student Name: _____   **Student ID:** _____

Question 1
(2 points)

Identify whether the following statements are true or false:

a. The interface of DBMS can only be based on the relational data model. (False)

b. If K is a superkey for a relation schema, any superset of K is also a superkey. (True)

Question 2
(4 points)

Consider the following database schema:

branch (branch-name, branch-city, assets)
customer (ID, customer name, customer street, customer city)
account (account-number, branch-name, branch-city, balance)

Identify whether the following statements are true/false:

a. {branch-name, branch-city} is a candidate key. (True)

b. {account-number, branch-name} is a candidate key.   (False)

c. {ID, customer-name} is a superkey. (True)

d. {account-number} is a superkey. (True)

Question 3
(2 points)

A university employs the following format for Instructor ID: NUM
where
NUM is a number in the range: 001-999
However, NUM is not unique across departments. For example, two faculty members from CS and ECE can have the same IDs: 015.
Consider the following relation schema:

instructor (instructor-id, dept-name, date-of-birth, nationality)

What is the primary key of this relation?

{instructor-id, dept-name}

Question 4
(2 points)

Consider the following database schema:

    department (dept-name, program-director, number-of-students)

    instructor (ID, dept-name, name)

{dept-name} is a foreign key from relation *instructor* to relation *department*.

Consider the following database instance:

  i.   Identify all the tuples that violate either primary key or foreign key constraints by circling them.

  ii.   For each violation, identify the type of violation (primary key constraint / foreign key constraint).

  iii.   Write down the total number of violations of each type.

dept-name	program-director	number-of-students
SDP	DrAbdulSamad	25
CS	DrAbdulSamad	50
EE	DrAamirHasan	25
PHYSICS	DrAnzarKhaliq	25

Different instructors can be part of different departments but there is no CE in department .
Foreign key violation

ID	dept-name	name
108	EE	DrAnzarKhaliq
503	EE	DrAamirHasan
108	CS	DrAbdulSamad
503	CE	DrAbdulSamad

There are no primary key violations.
There is only one foreign key violation (503, CE, DrAbdulSamad)