

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

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 / False)
- b. {account-number, branch-name} is a candidate key. (True / False)
- c. {ID, customer-name} is a superkey. (True / False)
- d. {account-number} is a superkey. (True / False)

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?

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:

- Identify all the tuples that violate either primary key or foreign key constraints by circling them.
- For each violation, identify the type of violation (primary key constraint / foreign key constraint).
- 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

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