Quiz1
Database Systems
CE 373/ CS 355 (L2)

Fall 2023

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

Question 1
(2 points)
Identify whether the following statements are true or false:

a. Under the DBMS-based approach, application programs are independent of any future changes in the file format used for data storage. (True / False)

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

Question 2
(2 points)
A university employs the following format for Student ID: AA-YYYY-NUM
where
        AA is an abbreviation of the student's major
        YYYY is the year student enters the university.
        NUM is a number in the range: 101-999
However, NUM is not unique across majors. For example, two students in CS and EE can have the student IDs: CS-2023-205 and EE-2023-205.
Consider the following relation schema:
        student (student-id, major, year-of-entry, date-of-birth)
What is the primary key of this relation?

Question 3
(4 points)
Consider the following database schema:
        Item (ItemName, VendorName, Price)
        Customer (CustomerCode, CustomerName, Address)
        Vendor (VendorName, ContactPerson, Address)
        Order (OrderNo, CustomerCode, ItemName, VendorName, OrderDate)
Identify whether the following statements are true/false:

a. {OrderNo} is a candidate key. (True / False)

b. {OrderNo, CustomerCode} is a superkey. (True / False)

c. {OrderNo, CustomerCode} is a candidate key. (Ture / False)

d. {ItemName} is a candidate key. (True / False)

Question 4

(2 points)

Consider the following database schema:

department (<u>dept-name</u>, program-director, number-of-students)

instructor (<u>ID</u>, name, dept-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	125
CS	DrAbdulSamad	50
EE	DrAamirHasan	50
PHYSICS	DrAnzarKhaliq	50

ID	name	dept-name
108	DrAnzarKhaliq	EE
503	DrAamirHasan	EE
102	DrAbdulSamad	CS
121	DrAbdulSamad	CS