Student ID: _____

Full Names: _____

Databases and Software Development (CS418)

(January 2021)

Instructor: O. Kalu

Midterm Integration Exercise (Part 1 - Theory)

1. The exam (both parts 1 and 2) duration is 2 hours.
2. This part 1 of the exam is all-written, paper-based; so you must NOT use a computer; no use of mobile phones; no internet communication; no books; no written notes.
3. **This exam is a copyrighted material and must not be taken away, or copied or photographed or reproduced or transferred or shared or distributed**.
4. You are expected to write your answers to the questions on sheet(s) of paper, take photo(s) of it and submit to me (okalu) when finished, via Chat on the CS418-2021-01A-01D Team on the Microsoft Teams app.
5. You may use additional sheets of paper as you need.
6. Make sure to clearly indicate the question number(s) for all your answers.
7. Upon completion, simply take photo(s) of all your pages of paper containing your answers/work, send it to me (okalu) when finished, via Chat before you will then begin working on the Part 2 Exam paper.
8. NO CHEATING!!!

Write your answers to the questions on pages of paper.
Write neatly and clearly!!! If your writing cannot be read, you get no credit for your answer.

(CS418 - DBSD)
(January 2021)
Midterm Examination – Part 1 - Theory (20 points)

Part I – Theory (True/False, Short answers, Multiple-choice questions):
(20 points)

1. (2 points) **Evolution of Databases**:

Write-down 2 advantages of the Database system over the File-based system:

2. (6 points) Answer the following questions with True or False. And for each of your answer, include a rationale (i.e. state why true/false):

I. (2 points) Normalization is also referred to as a "top-down" approach to Database design.

True or False?

_____

II. (2 points) The Cardinality of a relation is represented by the number of attributes it has.

True or False?

_____

III. (2 points) Consider the following SQL DDL code fragment given below:

FOREIGN KEY (staffNo) REFERENCES Staff(staffNo)

ON DELETE CASCADE

This will prevent deletion of row that has staffNo primary key in the parent table.

True or False?

_____

3. (12 points) Give short answers to the following questions.

I. (10 points) Consider the following database schema which is implemented on an RDBMS:

Employee	(empNo, fName, lName, address, DOB, sex, position, deptNo)
Department	(deptNo, deptName, mgrEmpNo)
Project	(projNo, projName, deptNo)
WorksOn	(empNo, projNo, dateWorked, hoursWorked)

a. (4 points) Identify and write-down the Primary Key(s) for each table

Table name	Primary key
Employee	
Department	
Project	
WorksOn	

b. (2 points) Identify and write-down all the Foreign Key(s)

c. (2 points) Consider the **projNo** attribute in the table named, **WorksOn**. When defining this attribute during the table creation, should its nullable constraint be set as NULL or NOT NULL?

State why?

d. (2 points) Write SQL DDL code to create the table named, Department.

II. (2 points) When coding a Database Application Program for MySQL with node.js and JavaScript, using the npm module named, mysql, what are the 4 basic database Connection config/properties needed to make a connection to the database?

//-- The End --//