The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering

Study Programme	: Bachelor of Software Engineering Honours
Name of the Examination	: Final Examination
Course Code and Title	**: EEX3266 - Information System & Data Management**
Academic Year	: 2021/22
Date	: 8th February 2023
Time	: 13:30-16:30hrs
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Five (5)** questions on **Four (4)** pages.
3. **Answer any four (4) questions out of the five (5) questions.**
4. All questions carry equal marks.
5. Answer for each question should commence from a new page.
6. This is a Closed Book Test **(CBT).**
7. Answers should be in clear handwriting.
8. Do not use red colour pen.

Question 01

The UPS company prides itself on having up-to-date information on current location of each shipped item. For this, UPS relies on a company-wide information system. Shipped items can be characterized into item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the UPS system at a single retail center. Retail centers are characterized by their type, unique-id, and address. Shipped items make their way to their destination via one or more standard UPS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique schedule Number, vehicle Type (e.g, flight,truck), and a delivery Route.

a) Create an Entity Relationship diagram for the UPS Company that captures the above given information. (20 marks)

b) Clearly indicate identifiers and cardinality constraints. (5 marks)

Question 02

Answer all the following questions.

a) List and explain three (03) DCL commands. (5 marks)
b) Explain with an example the syntax of the cursor implementation. Clearly describe each of the steps. (5 marks)
c) Describe 2NF with an example. (5 marks)
d) Explain the four roles of a database administrator. (10 marks)

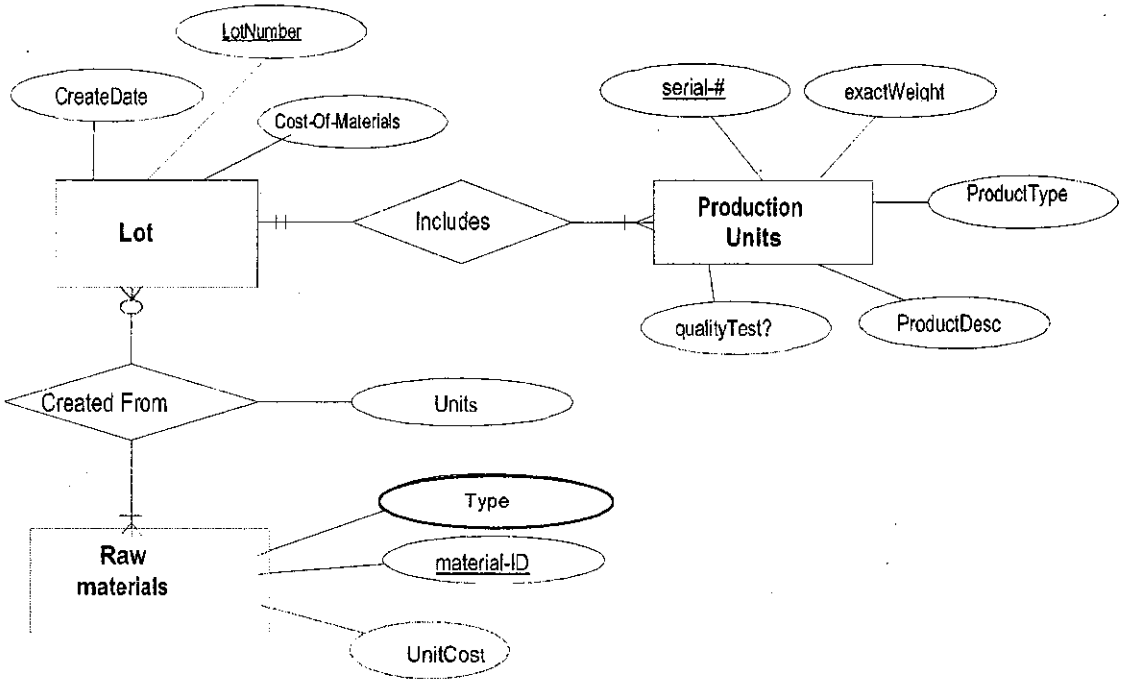
Question 03

Answer all the below given questions.

a) List three (03) disadvantages of a typical file processing system. (5 marks)
b) Describe what is.
   I. data abstraction
   II. data redundancy (3×2=6 marks)
c) Define the terms with an example.
   I. Candidate key
   II. Primary key (3×2=6 marks)
d) List four (04) DDL commands with syntax. (4 marks)
e) Describe what normalization is. (4 marks)

Question 04

Production tracking is important in many manufacturing environments (i.e., in pharmaceuticals industry, children's toys, etc.). The following ER diagram captures important information for tracking the production process. Specifically, the ER diagram captures relationships between production lots (or batches), individual production units, and raw materials.



a) Convert the above ER diagram into a relational database schema. (15 marks)
b) Clearly indicate primary keys and referential integrity constraints. (10 marks)

Question 05

Answer all the below given questions.

a) List three (03) disadvantages of a typical file processing system. (5 marks)
b) Describe what is.
   I. data abstraction
   II. data redundancy (3×2=6 marks)
c) Define the terms with an example.
   I. Candidate key
   II. Primary key (3×2=6 marks)
d) List four (04) DDL commands with syntax. (4 marks)
e) Describe what normalization is. (4 marks)

Question 06

Write SQL queries for the below given questions considering the structure given for book table.

Book-Master (bookid, bookname, author, no_of copies, price)

a) Write a command to create the Book_Master table.
b) Write a command to get an author wise list of all books.
c) Display all the ids of the books in the price range of Rs.500 and Rs. 800.
d) Display all books with corresponding details where the author's name starts with the letter 'D'.
e) Display the id of all the books where price is above Rs.700.
f) Display names of all books where the number of copies is less than 10.

(25 marks)

End of the paper