



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF INFORMATION AND COMMUNICATION
TECHNOLOGY

SECOND SEMESTER EXAMINATION, 2018/2019 ACADEMIC SESSION
COURSE TITLE: DATABASE DESIGN AND MANAGEMENT

COURSE CODE: ECT 320

EXAMINATION DATE: 11TH JULY, 2019

COURSE LECTURER: ENGR. O. O AFOLABI

A rectangular box containing a handwritten signature in cursive script, which appears to be 'O. O. Afolabi'.

HOD's SIGNATURE

TIME ALLOWED: 2 HOURS

INSTRUCTIONS:

1. ANSWER QUESTION ONE AND ANY OTHER **THREE** QUESTIONS
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

Question 1

- What is a DBMS? 3marks
- Define data abstraction and discuss the three levels of abstraction of a database system. 9marks.
- State the two basic types of DMLs. 4marks
- Differentiate between Instances and Schemas in the concept of a database. 4marks
- Generate the SQL queries that produced the “product table” as in Table 1. Beginning with the creation of the database named “southwind”. 10marks

Table 1: Products Table

| productID | productCode | name | quantity | price |
|-----------|-------------|-----------|----------|------------|
| 1001 | PEN | Pen Red | 5000 | 1.23 |
| 1002 | PEN | Pen Blue | 8000 | 1.25 |
| 1003 | PEN | Pen Black | 2000 | 1.25 |
| 1004 | PEC | Pencil 2B | 10000 | 0.48 |
| 1005 | PEC | Pencil 2H | 8000 | 0.49 |
| 1006 | PEC | Pencil HB | 0 | 9999999.99 |

6 rows in set (0.02 sec)

Question 2

- Exhibit your understanding of the term “Weak Entity Set”. 2marks
- Consider the Entity-Relationship diagram in Figure 1. Identify the following: [8marks]
 - The names of the two entity sets in the relationship.
 - The type and name of the relationship that exist between the two entity sets.
 - The attributes associated with each entity set.
 - The primary key attribute in each of the entity set.



Figure 1: Entity-Relationship diagram

Question 3

- State the three main Integrity Constraints. 6marks
- Write the SQL query that produce the following column of the Product table as shown in Table1. [4marks]

| Distinct Price |
|----------------|
| 1.23 |
| 1.25 |
| 0.48 |
| 0.49 |

Question 4

- a. Mention the SQL Keyword that can be used to add a new column “supplierID” into the Products table in Table 1 without deleting and re-creating the table. [2marks].
- b. List the two “design alternatives” of a database. [2marks]
- c. Identify the six fundamental operations of Relational Algebra. [6marks]

Question 5

- a. Discuss the advantage and disadvantages of “indexes” in column selection in a database. [4marks]
- b. Show the corresponding Products Table produced after executing the following SQL statement on the “Products table in Table 1: UPDATE products SET price = price * 1.1; . [6marks]

Question 6

Discuss into some details one of the following concepts of a DBMS. [10marks]

- a. Client-Server database systems.
- b. Knowledge-Based systems and Object-Based systems.
- c. Open Database Connectivity (ODBC) standard.
- d. Data warehousing and Data mining.
- e. Web databases.