



FOUNTAIN UNIVERSITY, OSOGBO, NIGERIA.

P.M.B.4491, OSOGBO, OSUN STATE.

COLLEGE OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICAL AND COMPUTER SCIENCES

FIRST SEMESTER EXAMINATION 2022/2023 SESSION

CPS309: DATABASE SYSTEM I

Credit Unit/Status:2(C)

Time Allowed:1 ½ HOURS

14/02/2023

INSTRUCTION(s): ANSWER QUESTION 1 AND ANY OTHER TWO (2) QUESTIONS.

1. An idealized, very simple example of a description of a database and their corresponding attributes is given below meant to be used in the design of an enterprise database for a supply chain company, JUSTRITE

PURCHASES

COMPANY NAME,
NAME
SUPPLIER NAME
PURCHASE DATE
PURCHASE COST
INGREDIENT NAME
INGREDIENT QUANTITY

PRODUCT

PRODUCT ID
PRODUCT NAME
CITY

SUPPLIER

SUPPLIER NAME
SUPPLIER CITY

RETAILER

RETAILER
RETAILER

EMPLOYEE

EMPLOYEE ID
EMPLOYEE NAME
STREET
CITY
SEX
SOCIAL SECURITY CODE

SALES INVENTORY

PRODUCT ID
RETAILER NAME
SALES DATE
SALES QUANTITY
SALES COST

COMPANY

COMPANY NAME
CITY

DEPARTMENT

DEPARTMENT ID
COMPANY NAME

WORKS UNIT

EMPLOYEE ID
DEPARTMENT ID
PRODUCT ID
SALARY
JOBTITLE

The above description is meant to be used to design and create an enterprise database system for the company.

- Assuming you are the team leader for the project, list a step-by-step approach of designing and setting up a big database of this magnitude [4 Marks]
- Explain what you understand by a database schema. From the tables above, prepare a database schema for at least 3 of the tables above [4 Marks]
- Create a comprehensive database (at least 3 tables) for the company using the schema in (1b) above. [5 Marks]
- Write a query command that will filter out SALES QUANTITY above 500 units [4 Marks]
- Using the INSERT Clause populate the SALES INVENTORY table with relevant data [3 Marks]
- From a database viewpoint, list 5 justifications why this project is a worthwhile initiative for the company [4 Marks]

- 7 2.a i) Demonstrate your understanding of the concept of database. [3 Marks]
- ii) Differentiate between a Database system and a Database Management System. [3 Marks]
- bi) Give 4 reasons why Microsoft Excel is not suitable to manage large database systems. [4 Marks]
- ii Recommend a Database Management system which can be used to handle Large Database system [2 Marks]
- c) Explain what is meant by a Client-Server database System and discuss briefly how it works. Illustrate your answer with a suitable diagram [6 Marks]
- 3a) A fact that cannot be denied is that Corporate Data is the Corporate Asset: If corporate data is truly to be a Corporate Asset, it's got to be consistent, reliable and highly secure. Discuss the methods that can be used to ensure consistency, reliability and integrity of a database system [5 Marks]
- b) Discuss the concept of Database Normalization and list 4 rationales for normalizing databases [5 Marks]
- c) What is database denormalization? [3 Marks]
- d) Mention 2 instances when it becomes expedient to denormalize database tables. [3 Marks]
- e) What does the value NULL indicate in a database table. [2 Marks]
- Q4 a) One of the most important components of a Database Architecture is the Database Manager. List its functions. [6 Marks]
- b) List five responsibilities of a good Database Administrator [5 Marks]
- c) In SQL, explain the two dominant classes of Commands viz: (DDL and DML) available and illustrate your answer with good examples [7 Marks]
- Q5. Write short note on each of the following concepts in Database systems
- (i) Database Schema [3 Marks]
- (ii) Logical view of a database [3 Marks]
- (iii) One to many relationship [3 Marks]
- (iv) Multi-tier database architecture [3 Marks]
- (v) Database models [3 Marks]
- (vi) Attributes of a OOD database [3 Marks]