NATIONAL OPEN UNIVERSITY OF NIGERIA,

PLOT 91, CADASTRAL ZONE, UNIVERSITY VILLAGE, JABI – ABUJA

FACULTY OF SCIENCES

2021_1 EXAMINATION

Course Code: CIT 427

Course Title: DATABASE SYSTEM AND MANAGEMENT

Time: 2 Hours 30 minutes

Credit: 3 Units

Instruction: Attempt 5 questions. Question1 is Compulsory and any other four (4) Questions

QUESTION ONE (22 MARKS) COMPULSORY

a. Explain the basic deficiency of the navigational model of the Codasyl. **2 Marks**
b. What is Domain Key Normal Form (DKNF) **2 Marks**
c. List the six operations of relational algebra as it relates to databases.**3 Marks**
d. Write the syntax for Delete in SQL. Illustrate with an example. **2 Marks**
e. Who is a Database Administrator? **2 Marks**
f. Explain the term "Data Definition Language. **3 Marks**
g. Why does a DBMS exhibit "replication transparency" **3 Marks.**
h. Compare and contrast between IMS and Codasyl DBMS. **3 Marks**
i. In Object Oriented Model, how can one Object access data of another Object? **2 Marks**

QUESTION TWO (12 MARKS)

a. Define data models. Give four examples of data models. **4 Marks**
b. Distinguish between the physical and the logical data models. **2 Marks**
c. Write briefly on the following features of DBMS:
   i. Query ability. **2 Marks** ii. Backup and replication **2 Marks**
   iii. Automated Optimization **2 Marks**

QUESTION THREE (12 MARKS)

a. What are web services? **2 Marks**
b. Distinguish between websites and web services. **3 Marks**
c. Give two (2) advantages and two (2) disadvantages of web services. **4 Marks**
d. At what point is it required to use the CDATA sections in your XML document. Illustrate with an example. **3 Marks**

QUESTION FOUR (12 MARKS)

a. What is an Extensible Markup Language? **2 Marks**
b. Write the relationship between XML and SGML **5 Marks**
c. State any five (5) XML development goals based on W3C recommendation. **5 Marks**

QUESTION FIVE (12 MARKS)

a. Explain the term "Transaction Mechanism" in DBMS. **3 Marks**
b. Discuss briefly the following DBMS components.
   i. Modeling Language **2 Marks** ii. Data Structures **2 Marks** iii. Data Query Language **2 Marks**
c. Define the following terms in E-R Model. **3 Marks**
   i. Entity **(1 Mark)** ii. Relationship **(1 Mark)** iii. Mapping Cardinalities **(1 Mark)**

QUESTION SIX (12 MARKS)

a. What is Existence Dependencies? Illustrate with an example. **5 Marks**
b. Explain the following SQL Commands.
   i. Deletion **3 Marks** ii. Insertion **2 Marks** iii. Updates **2 Marks** (illustrate each with an example}