



**NATIONAL OPEN UNIVERSITY OF NIGERIA,  
PLOT 91, CADASTRAL ZONE, UNIVERSITY VILLAGE, JABI – ABUJA  
FACULTY OF SCIENCES  
2021\_2 EXAMINATIONS**

**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)**

- a. Briefly discuss on Database Servers. **3 Marks**
- b. Explain how the relational DBMS stores and work with large databases. **3 Marks**
- c. Define the term “Existence Dependencies”. **2 Marks**
- d. State SQL equivalent of the following relational algebraic operators
  - i. Selection Predicate (**1 Mark**)
  - ii. Cartesian product (**1Mark**)
  - iii. Project (**1Mark**)
- e. What are foreign keys in database context? Illustrate with an example. **2 Marks**
- f. Give an overview of the operations in DBMS. **4 Marks**
- g. Elaborate on the category of database users called “Application Programmers”. **3 Marks**
- h. A linked list system would be very in-efficient when storing “sparse” databases. How can this in-efficiency be resolved using the relational database model? **2 Marks**

**QUESTION TWO (12 MARKS)**

- a. State the relevance of the following to database management:
  - i. Query processor **1Mark**
  - ii. DML Precompiler **1Mark**
  - iii. DDL Compiler. **1 Mark**
  - iv. File Manager **1Mark**
- b. List the various guidelines to adopt in implementing domain constraints. **5 Marks**
- c. What is Referential Integrity? **3 Marks**

**QUESTION THREE (12MARKS)**

- a. Briefly write on sequential file organization? **4 Marks**
- b. What are the relationships between XML and SGML. **4 Marks**
- c. State any eight (8) XML development goals based on W3C recommendation. **4 Marks**

**QUESTION FOUR (12 MARKS)**

- a. With reference to XML, what are XPointer and XLink. **2 Marks**
- b. What is Extensible Style Language (XSL). **3 Marks**
- c. List the six kinds of markup that can occur in an XML document. **3 Marks**
- d. List and explain two kinds of XML markup tags that are not textually part of the XML. **4 Marks**

**QUESTION FIVE (12 MARKS)**

- a. Explain the terms DDL and DML. **4 Marks**
- b. Elaborate on any three (3) features offered by Database Management System. **6 Marks**
- c. Explain the term “Automated Optimization” in DBMS. **2 Marks**

**QUESTION SIX (12MARKS)**

- a. The task of specifying a system of file organization for a computer software program designed for a particular purpose is a high level design decision. Discuss the key considerations in specifying the Computer software program file organization. **4 Marks**
- b. Distinguish between Latency and Throughput in Database Management System. **4Marks**
- c. Briefly describe the “Optical Storage”. **4 Marks**