



**National Open University of Nigeria**  
**Plot 91, Cadastral Zone, NnamdiAzikiwe Expressway, Jabi - Abuja**  
**Faculty of Science**  
**Department of Computer Science**  
**2022\_2 EXAMINATIONS**

**COURSE CODE:** CIT427

**COURSE TITLE:** Database System and Management

**CREDIT:** 3 Units

**TIME ALLOWED:** 2 ½ Hours

**INSTRUCTION:** Answer Question ONE (1) and any other THREE (3) Questions

**Question ONE**

- Describe the levels of computer data storage, with aid of diagram (5 marks)
- Describe the major components of a data structure. (5 marks)
- What are the basic functions of a Data manipulation language in DBMS. (4marks)
- Identify the relationship between the XML pointer language and the XML linking language.(5 marks)
- Describe the CODASYL approach of the Navigational DBMS. **6 MARKS**

**Question Two**

- Explain the components of web services architecture. (8 marks)
- Highlight the steps involved in a typical Web Service Invocation. (5 marks)
- Identify the XML specification that predefines the following internal entities.

**Question Three**

- Use appropriate SQL commands to Create a student table called **EMPLOYEE**. The student table should consist of Surname (15 characters), firstname (15characters), Street (25 characters), phone number, age and staff number (9 characters) as primary key. (8 Marks)
- Identify the basic six (6) operations a relational algebra can undergo (3 marks)
- State the differences between XML and HTML. (4 marks)

**Question Four**

- List the four main parts of a DBMS and explain any two (2). (7marks)
- Briefly explain the essential elements of an entity-relationship diagram. (6marks)
- Briefly discuss the concept of file organization. 2 marks

**Question Five**

- Briefly describe the concept of Database Servers. (4marks)
- Explain the data structures required for physical system implementation. (6marks)
- List the common types of object-based logical models. (5marks)
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**Question Six**

- a. Distinguish between Data Definition Language and Data Manipulation Language. (6 marks)
- b. Identify the basic six operations a relational algebra can undergo (6 marks)
- c. Briefly discuss the concept of logical category of data independence. (3 marks)