



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
2023_1 POP EXAMINATION.

COURSE CODE : CIT 843
COURSE TITLE : INTRODUCTION TO DATABASE MANAGEMENT SYSTEM
CREDIT UNIT : 2
TIME ALLOWED : 2 HOURS
INSTRUCTION : ANSWER QUESTIONS 1(ONE) AND ANY OTHER THREE (3)

- 1a) State five (5) advantages of DBMS? *(2½marks)*
- b) What is the relationship between Forms and Sub-form? When is sub form required?*(3½mks)*
- c.) Write the full meaning of the following acronyms:
 - (i) DDL, (ii) RDBMS, (iii) ODBC, (iv) SQL v) XML *(5 marks)*
- d) Write short notes on the following SQL Scalar functions:
 - (i) LCASE(), (ii) ROUND (), (iii) NOW(), (iv) FORMAT () *(4 marks)*
- e) What are the strengths and limitations of Traditional Mainframe Architecture?*(5 mks)*
- f) Why did Relational database systems replace the File based systems *(5marks)*

- 2a) Describe the term "Database Architecture"? Explain the features of File sharing database system architecture? *(8marks)*
- b) Describe extensively any seven (7) Microsoft Access data types? *(7 marks)*

- 3a) What is a database management system? Using appropriate diagram, show the contents of a database system *(6½marks)*
- b) With suitable illustration describe the concepts of normalization justify the need for normalization and the first three normal forms *(8½marks)*

- 4a) Describe in detail the following terms: (i) Two-Tier Client/Server Architecture (ii) N-Tier Client/Server Architectures, (iii) Open Database Connectivity (ODBC) *(9marks)*
- 4b) Give suitable explanations on the following relational database concepts *(6marks)*
 - i. Relational algebra
 - ii. Relational operations
 - iii. Union (A U B)
 - iv. Intersection (A n B)
 - v. Difference (A – B)

- 5a.) What is database recovery? How can you prevent deadlocks from occurring? *(4mks)*

b.) Discuss extensively with examples the importance of Database security (4mks)
c) What is the function of SQL GRANT and REVOKE commands? Using the SQL GRANT and REVOKE statements, exercise the following rights on the relation below. (7mks)

Table: Table name - **EMPLOYEES**

| STAFF ID | STAFF NAME | LOCATION | SALARY STATUS | WORK EXPERIENCE | ACCESS RIGHTS |
|----------|------------------|----------|---------------|-----------------|---------------|
| 001 | Jason Birmingham | Britain | Paid | 5 | User Data |
| 002 | Richard Banks | Britain | Unpaid | 5 | User Data |
| 003 | Frederick Hanson | France | Paid | 4 | Full Rights |
| 004 | Butler Steaks | Italy | Paid | 3 | Full Rights |
| 005 | Francois Mason | France | Paid | 3 | Full Rights |