



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA
FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
2020_2 EXAMINATION

COURSE CODE: CIT844

TITLE: ADVANCED DATABASE MANAGEMENT SYSTEMS

CREDIT: 2 CREDIT UNITS

TIME ALLOWED: 2HRS.

INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER THREE (3)

Question 1 (25 marks) COMPULSORY

- (a) Discuss the following briefly as related to database design **(6marks)**
 - i. Conceptual design
 - ii. Logical design
 - iii. Physical design
- (b) Briefly describe transaction and explain the transaction locking method **(6 marks)**
- (c) What is Relational Database and briefly describe the term relational model **(3 marks)**
- (d) Mention five (5) applications of data mining. **(5 marks)**
- (e) Explain what database recovery management is all about **(5 marks)**

Question 2 (15 marks)

- (a) What is an XML Element? **(2 marks)**
- (b) List five (5) XML Naming Rules **(5 marks)**
- (c) Mention and explain two (2) design issues that are specific to distributed databases **(4 marks)**
- (d) Write short notes on the following characteristics of data warehouse: **(4 marks)**
 - (i) Subject Oriented,
 - (ii) Integrated

Question 3 (15 marks)

- (a) Highlight five (5) advantages of data distribution. **(5 marks)**
- (b) Highlight any four topology that exists in distributed database systems **(4 marks)**
- (c) State and briefly explain the three (3) disadvantages of data distribution **(6 marks)**

Question 4 (15 marks)

- (a) Apart from the specific GIS applications, identify three (3) other database functionalities that GIS database is also subjected to **(3 marks)**
- (b) Differentiate between centralized and distributed database systems. **(2 marks)**
- (c) Explain any two of the ACID properties that guarantee that database transactions are processed reliably. **(5 marks)**
- (d) Briefly illustrate the following: **(5 marks)**
 - I. Binary locks
 - II. Shared/Exclusive locks

Question 5 (15 marks)

- (a) What does optimization of query mean? **(2marks)**
- (b) Briefly explain why it is important to optimize query **(3 marks)**
- (c) Briefly write on the following:
 - i. Deadlocks **(4 marks)**
 - ii. Two-Phase locking **(2 marks)**
- (d) Compare and contrast between a malicious and an accidental loss of data **(4 marks).**