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).**