NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, NnamdiAzikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES

APRIL 2019 EXAMINATION

COURSE CODE: CIT 844
COURSE TITLE: Advanced Database Management System
CREDIT: 2 Units
TIME ALLOWED: 2 Hours
INSTRUCTION: Answer Question One (1) and any other Three (3) Questions

Question 1
1a)   i) State the components of a Relation. Use an example to illustrate your answer *(3 marks)*
         ii) State the characteristics of each component and what each represents *(2½ marks)*
         iii) Outline the rules every Relation must adhere to *(3 marks)*
1b) Briefly discuss the following concept stating their relationships: (Give illustrative examples
where necessary)
      i) Entity and Attribute, *(2 marks)*
      ii) Composite and Simple attributes *(3 marks)*
      iii) Single-value and Multi-value attribute *(3 marks)*
      iv) Store and Derived attributes *(2½ marks)*
1c) Explain how security is implemented in the Relational models and who is responsible.
         (6 marks)

Question 2

2a) What is data warehouse?   *(2 marks)*
b) State the benefits and the overall objective of data warehouse. *(3 marks)*
c) What are the characteristics of data warehouse *(6 marks)*
d) A data mart is a restricted data warehouse. Enumerate the number of ways a Data mart may be
restricted. *(4 marks)*

Question 3
3a) Define User Interface. *(2 marks)*
b) Briefly explain any four types of User Interface *(8 marks)*
c) Why is the understanding of key data models important? *(2 marks)*
d) What is Data mining?   *(3 marks)*

Question 4

4a) Concisely explain the usage and profile definition functions performed by the database administrator (DBA) *(7½ marks)*
4b) What is XML?   *(2½ marks)*
4c) Outline the simple structure of XML Documents *(2½ marks)*
4d) List the syntax rules of XML   *(2½ marks)*

Question 5

5a) State the uses of **Drop** and **Alter** Table commands   *(3 marks)*
5b) Using the relation named Instructor below, write the SQL commands to:
      i.   Find the average salary in each department   *(2½ marks)*
      ii.   Find the number of instructors in each department.   *(2½ marks)*
     (**Hint**: use appropriate alias names)

Table: Instructor

ID	name	dept_name	salary
76766	Crick	Biology	72000
45565	Katz	Comp. Sci.	75000
10101	Srinivasan	Comp. Sci.	65000
83821	Brandt	Comp. Sci.	92000
98345	Kim	Elec. Eng.	80000
12121	Wu	Finance	90000
76543	Singh	Finance	80000
32343	El Said	History	60000
58583	Califieri	History	62000
15151	Mozart	Music	40000
33456	Gold	Physics	87000
22222	Einstein	Physics	95000

c) Show the resultant tables from the execution of the SQL commands you gave in Question 5b (i) and (ii) above. *(7 mark)*