National Open University of Nigeria

Plot 91, cadastral Zone, Nnamdi Azikiwe Express Way, Jabi, Abuja

FACULTY OF SCIENCES

2022_2

COURSE CODE: CIT844

TITLE: ADVANCED DATABASE MANAGEMENT SYSTEMS

CREDIT: 2 CREDIT UNITS

TIME ALLOWED: 2HRS.

INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER TWO (2)

QUESTION ONE

1(a) Describe Domain in relational database with examples (4 marks)

1(b) Describe a database and outline three benefits of a database (5 marks)

1(c) Describe three basic update operations performed on relational database model (3 marks)

1(d) Use table 1 to answer the following questions

  (i)   What is the possible domain for field EmpJobCode?
  (ii)   How many tuples are shown?
  (iii) How many attributes are shown?
  (iv)   What is the cardinality?
  (v)   What is the degree?
         (1 mark each)

         Table 1

EMPLOYEE

EMPID	EMPLNAME	EMPINIT	EMPFNAME	EMPJOBCODE
123455	Friedman	A.	Robert	12
123456	Olanski	D.	Delbert	18
123457	Fontein	G.	Juliette	15
123458	Cruazona	X.	Maria	18

(e) Outline any four RDBMS database software (4 marks)

(f) Discuss the term Encryption (4 marks)

(g) Describe HTML and outline three merits (5 marks)

[30 marks]

QUESTION TWO

2(a) Describe Relational Database Management System (3 marks)

2(b) Create an employee table with three tuples and three attributes (8 marks)

2(c) Mention and briefly explain any three form of user authorization to a database (6 marks)

2(d). Why are duplicate tuples not allowed in a relation (3 marks)

[20 marks]

QUESTION THREE

3(a) Write short notes on the following:

(i)   Lossless-join decomposition
(ii)   Dependency Preservation
(iii)   Repetition of Information
        (2 marks each)

3(b) (i) What are the acronyms of BCNF and 3NF and (ii) Compare BCNF and 3NF (6 marks)

(c) Describe SQL and list the functions and list any four functions of SQL(8 marks)

[20 marks]

QUESTION FOUR

4(a) Describe a backup coordinator (6 marks)

(b) List and explain the four different types of SQL JOINs (4 marks)

(c) Describe a database catalogue system (3 marks)

(d) Compare and contrast between a malicious and an accidental loss of data (4 marks)

(e) Describe multimedia databases (3 marks)

[20 marks]

QUESTION FIVE

(a) Describe Database Recovery and outline four types of failure that could make the DBMS require recovery (6 marks)

(b) Absolute protection of the database from malicious abuse is not possible, but the cost of the perpetrator can be made sufficiently high to deter most if not all attempts to access the database without proper authority. List and explain at least 3 points of security measures which can be taken to protect the database (6 marks)

(c) Outline and explain three disadvantages of Data Distribution (6 marks)

(d) Describe Multi-media Database and list the difficulties involved with Multimedia Databases (5 marks)

[20 marks]