NATIONAL OPEN UNIVERSITY OF NIGERIA,
PLOT 91, CADASTRAL ZONE, UNIVERSITY VILLAGE, JABI – ABUJA
FACULTY OF SCIENCES
2024_1 EXAMINATION

Course Code: CIT 843
Course Title: INTRODUCTION TO DATABASE MANAGEMENT SYSTEM
Time: 3 hrs
Credit: 3 Units
Instruction: Attempt 3 questions. Question1 is Compulsory and any other two (2) Questions

Question One

1a. Write the full meaning and briefly explain the following terms: (a) DDL (b) DML (c) SDL (d) VDL **4marks**

1b Enumerate **five (5)** application areas of database **5marks**

1c. Enumerate **three (3)** components of data model. **6marks**

1d. Explain any five (5) types of keys in Database **5marks**

1e. With the aid of a diagram, briefly discuss Two-Tier Client/Server Architecture **10marks**

Question Two

2a. What is a primary key? Give five (5) attributes that can be used as primary key. **5marks**

2b. Mention and explain the types of relationship. **5marks**

2c. Consider the following relations for a database that keep track of automobile sales in a car dealership (OPTION refers to some optional equipment installed on an automobile):

CAR(SerialNo, Model, Manufacturer, Price)
OPTION(SerialNo, OptionName, Price)
SALE(Salesperson_id, SerialNo, Date, Sale_Price)
SALESPERSON(Salesperson_id, Name, Phone)

(i) Specify the primary key for this schema and briefly explain your reasons of choosing such field. **3marks**

(ii) Identify and list the number of entities and attributes we have from the about schema. **7marks**

Question Three

3a. Describe Structured Query Language (SQL) **5marks**

3b. Briefly explain the following terms: (a) User data (b) Metadata (c) Indexes (d) Tables (e) Relationship (f) Domains (g) Data Security 10 **marks**

3c. Mention five (5) security problems that are common to database systems **5marks**

b. Explain the monochromaticity of the laser light. **[5 marks]**

(Total = 15 marks)

QUESTION 4

a. Highlight six (5) main applications of lasers. **[10 marks]**

b. State the difference between normal photography and holography **[5 marks]**

(Total = 15 marks)

QUESTION 5

a. Why is light not used for communication purposes despite the advantages. **[6 marks]**

bi. State the need for fibres to carry optical signals. **[5 marks]**

ii. What are the additional characteristics the optical fibre must have to serve as an effective optical signal-carrying medium. **[4 marks]**

(Total = 15 marks)

QUESTION 6

ai. What will happen if time delay is much less than the coherent time in the Michelson interferometer? **[4 marks]**

ii. Explain monochromaticity **[4 marks]**

bi. Given $I_{max} = \sin^{-1}(n_1{}^2 - n_2{}^2)^{1/2}$, what does I_{max} and $(n_1{}^2 - n_2{}^2)^{1/2}$ stands for? **[4 marks]**

ii. State the reason for referring to optical fibres as optical waveguide **[3 marks]**

(Total = 15 marks)