NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, Plot 91, Jabi Cadastral Zone, Nnamdi Azikiwe Expressway, Abuja

FACULTY OF SCIENCES

Computer Science Department

2023_1 POP EXAMINATION231

Course Code: **CIT302**

Course Title: **Data Mining and Data Warehousing**

Credit: **3 Units**

Time Allowed: **2½ hours**

Instruction: **Answer Questions One (1) and any other THREE (3) questions**

Questions One (25 Marks) – Compulsory

1 (a) Enumerate any three (3) applications of the information or knowledge extracted by data mining. **(3 marks)**

1 (b) Describe any four (4) of the common classes of tasks in data mining. **(6 marks)**

1 (c) Describe any three (3) components of a typical data mining system. **(6 marks)**

1 (d) Distinguish between *Online Transaction Processing* (OLTP) and *Online Analytical Processing* (OLAP) by completing any ten (10) rows in the table below. **(10 marks)**

Feature	OLTP	OLAP
Characteristic		
Orientation		
User		
Function		
DB design		
Data		
Summarization		
View		
Unit of work		
Access		
Focus		
Operations		
No, of records accessed		
No of users		
DB size		
Priority		
Metric		

Question Two

a) Define Data Mining and list four of its key properties. **(5 marks)**

b) Data mining functionalities are used to specify the kinds of patterns to be found in data mining tasks. Briefly describe any four (4) of the data mining functionalities. **(10 marks)**

Question Three

a) Describe any five (5) of the following data mining technologies:

i. Neural Networks

ii. Decision Trees

iii. Rule Induction

iv. Genetic Algorithms

v. Discriminant Analysis

vi. Generalized Additive Models (GAM)

(10 marks)

b) Fully discuss two (2) reasons why On-Line Analytical Mining (OLAM) (also called OLAP mining), is important.

(5 marks)

Question Four

a) Define data warehousing. **(4 marks)**

b) Give three (3) advantages of a Data Warehouse. **(3 marks)**

c) With many data mining system products available on the market, one may ask, "*What kind of system should I choose*?" List four (4) and explain two (2) of the features on which the choice of data mining systems should depend.

(8 Marks)

Question Five

a) List any six (6) tasks in building a data mining database.

(3 marks)

b) Enumerate two (2) examples (or use cases) for each of the following:

- Data Mining for Financial Data Analysis.
- Data Mining for the Retail Industry.
- Data Mining Applications in Telecommunications.
- Data Mining for Biological Data Analysis.

(8 marks)

c) A successful data warehouse starts with understanding the users and their needs. List the four (4) categories of data warehouse users.

(4 marks)

Question Six

a) List six (6) categories of data/information on which data mining can be applied.

(3 marks)

b) Briefly discuss the three (3) types of data warehouse applications.

(6 marks)

c) Provide six (6) differences between Data Warehouses (OLAP) and Operational Database Systems (OLTP).

(6 marks)