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

FACULTY OF SCIENCES

Computer Science Department
2022_2 EXAMINATION

Course Code: **CIT 302**

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

Credit: **3 Units**

Time Allowed: **3 hours**

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

Question One (25 marks) COMPULSORY

a) Briefly discuss any four (4) of the data mining issues listed below:

- Mining different kinds of knowledge in databases
- Presentation and visualization of data mining results
- Incorporation of background knowledge:
- Handling noisy or incomplete data
- Pattern evaluation
- Efficiency and scalability of data mining algorithms

(8 marks)

b) Data warehousing exhibits certain characteristics to support the management's decision-making process. State and describe four (4) of these features.

(9 marks)

c) Briefly describe any four (4) steps involved in the *Knowledge Discovering in Databases (KDD)* process.

(8 marks)

Question Two

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

b) Data mining functionalities are used to specify kinds of pattern 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 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 on.

(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) 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 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)