



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI, ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
OCTOBER, 2019 EXAMINATIONS

COURSE CODE: DAM301

COURSE TITLE: DATA MINING AND DATA WAREHOUSING

COURSE CREDIT: 3 UNITS

TIME ALLOWED: 2½ HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER FOUR (4) QUESTIONS

- 1a) List the two (2) measures for an association rule, justifying their relevance (3 marks)
b) Outline the implementation steps of the K-Means partitioning algorithm. (4 marks)
- c) How does the K-Medoids algorithm improve the K-Means algorithm? (2 marks)
d) Relate the role of information gain for attribute selection in the Decision Tree induction algorithm. (2 marks)
e) Enumerate other characteristics of Data Warehouse outside the definition of William Inmon. (3 marks)
f) Identify three disadvantages to the implementation of Data Warehouses. (3 marks)
g) List four of the major components of a data warehouse (2 marks)
h) What is a multimedia database? (3 marks)
- 2a) In data warehouse technology, a multiple dimensional view can be implemented by a relational database technique (ROLAP), or by a multidimensional database technique (MOLAP), or by a hybrid database technique (HOLAP). Briefly describe each implementation technique and its advantages and disadvantages. (8 marks)
- b) Briefly discuss the roles of data mining in the following application areas:
i) Business (2 marks)
ii) Transportation. (2 marks)
- 3) What do you understand by data mining functionalities? (2 marks)
b) Briefly explain any five (5) data mining functionalities and identify the variety of knowledge they discover. (10 marks)
- 4a) Discuss the **apriori** algorithm for finding frequent *itemsets* relating the steps involved. (9 marks)
b) Explain clearly how the Apriori algorithm reduces computation cost. (3 marks)

- 5a) Appraise the common types of data preparation methods (*6 marks*)
- b) What are the reasons for data pre-processing (*3 marks*)
- c) Mention six (6) factors used in measuring the quality of a data. (*3 marks*)

- 6a) Describe the following concept of data mining functionalities:
 - i) Characterisation (*3 marks*)
 - ii) Prediction regression (*3 marks*)
- b) Write short notes on World-Wide Web (WWW). (*6 marks*)