UGANDA MARTYRS UNIVERSITY

UNIVERSITY EXAMINATIONS

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION SYSTEMS

END OF SEMESTER FINAL ASSESSMENT

SEMESTER I, 2018/19

THIRD YEAR EXAMINATIONS FOR BACHELOR OF SCIENCE & INFORMATION TECHNOLOGY

DATA WAREHOUSING AND BUSINESS INTELLIGENCE

Code: CSC 3101

DATE: 14TH DECEMBER, 2018

TIME: 9:30 AM – 12:30 PM

DURATION: 3 HRS

Instructions:

1. DO NOT OPEN THIS EXAM UNTIL YOU ARE TOLD TO SO.
2. THE EXAM CONTAINS **TWO** SECTIONS.
3. THE SECTION **A (40 MARKS)** IS COMPULSORY AND ANSWER ANY **THREE** QUESTIONS IN SECTION **B (60 MARKS)**
4. SPEED AND ACCURACY ARE KEY IN THIS EXAM.
5. ANSWER THE EXAM WITH TIME IN MIND
6. ALL ROUGH WORK SHOULD BE IN YOUR ANSWER BOOKLET

SECTION A (40 MARKS)

Question 1:

a) Define the term data warehouse. (2 Marks)

b) What is the difference between a primary key and a surrogate key? (2 Marks)

c) What do you understand by the term Data mining? (2 Marks)

d) State the goal of clustering in data mining. (2 Marks)

e) How is a DataMart different from a data warehouse? (4 marks)

f) Explain the difference between a data mart and metadata. (4 Marks)

g) List any four benefits of data mining. (4 Marks)

h) What do you understand by an ETL process? (3 Marks)

i) Briefly explain the ACID properties of databases. (4 Marks)

j) List any two approaches to building a data warehouse. (2 Marks)

k) Give any 4 best practices for data warehouse architecture. (4 Marks)

l) Explain the terms prediction and classification as used in data mining techniques. (4 Marks)

m) Describe the best data warehouse architecture used when building a data warehouse. (3 Marks)

SECTION B (60 MARKS)

Question Two:

a) Define the term Data Attribute and highlight the different types of attributes used in Data mining (4 marks)

b) Present an example where data mining is crucial to the success of a business. What data mining functionalities does this business need (e.g., think of the kinds of patterns that could be mined)? Can such patterns be generated alternatively by data query processing or simple statistical analysis? (10 marks)

c) Describe three challenges to data mining regarding data mining methodology and user interaction issues. (6 marks)

Question Three:

a) Define the term Data Granularity. (2 Marks)

b) Explain the steps in designing a dimensional model. (10 Marks)

c) What are the benefits of using dimensional modeling? (8 Marks)

Question Four:

Uganda Martyrs University is a running a multi-campus model for its business in the education and research sector and are in need of a data warehouse. You have been selected as a consultant to help the university come up with a Data Warehouse

a) Describe seven major components of a Data Warehouse that you intend to propose. (14 Marks)
b) Explain any six the different steps you need go through in order to come up with your Data Warehouse? Explain them in the correct order. (6 Marks)

Question Five:

a) What are the differences between the three main types of data warehouse usage: information processing, analytical processing and data mining? (12 marks)
b) Discuss the motivation behind OLAP mining (OLAM). (8 marks)

Question Six:

a) Briefly explain what you understand by term data warehousing (2 Marks)
b) What are the structural differences between OLTP and OLAP systems (10 Marks)
c) Explain the characteristic features of Data warehouse in detail. (8 Marks)

Feliz Navidad