MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

(CITY CAMPUS – EVENING)

CIT 202: INTRODUCTION TO DATABASES

Date: 24th July, 2014

Time: 5.30 - 7.30 p.m.

INSTRUCTIONS:

- Answer Question ONE (COMPULSORY) in Section A and any other TWO questions from Section B.
- Question one carries 30 marks and each question in Section B attracts a total of 20 marks.

1   Answer ALL questions in Section A. They attract a total of 30 Marks.
2   Answer any TWO QUESTIONS in Section B. Each question attracts a total of 20 marks.

SECTION A

Q1 (a)

(i) Discuss the elements of a database.   **5marks**

(ii) Explain the steps involved in entity modeling   **5marks**

(b)   (i) Explain the function of the SELECT in relational Algebra. **2marks**
      (ii) Give an example of a relational expression using notation for the operator above.
                                                               4 marks,

(c) Interpret the meaning of the following symbolic expression in Relational Algebra.

$$< PI>_{<attribute\ list>} (R)$$

                                                               5marks.

(d) Write a notation for RENAME and using an Algebraic statement show how it is used in RDBS.
                                                               5marks

(e) What is a relational algebra? Give the outcome the set difference operation below.

Set difference

5marks

SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION(20MARKS EACH)

Q2.

(a) Discuss any four Relational operators that are derived from set theory
10 marks

(b)
  (i) What is normalization? **2marks**
  (ii) Indentify and briefly explain the activities undertaken in the three normal forms in the normalization process. **8marks**

Q3 (a) Differentiate between Unary and Binary operations **4 marks.**
  (b) Using notations give Two examples of unary operator and two examples of binary operators together with work they do. **6marks.**

  (c) Discuss the meaning Data Integrity and explain how it is enforced in RDBS **10 marks**

Q4 (a) Discuss the relevance of transaction management and concurrency control in database management. **10marks**
  (b) Discuss the importance maintenance operations in RDB model. **5marks**
  (c) Describe the structure of a file. **5marks**

Q5 (a) State and explain the syntaxes for the maintenance operations. **10marks**
  (b) Using diagrams discuss the concepts of cardinality and participation in a relationship. **10marks**