NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMUNICATION AND INFORMATION SCIENCE

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

BACHELOR OF SCIENCE (HONOURS) DEGREE IN LIBRARY AND INFORMATION SCIENCE

PART II SECOND SEMESTER JULY 2013 SUPPLEMENTARY EXAMINATIONS

ILI 2201: DATABASE APPLICATIONS IN ARCHIVES, LIBRARIES AND PUBLISHING

TIME: 3 HOURS

Instructions to candidates
1. Answer any <u>four</u> questions.
2. Give equal time to each question.
3. Each question carries 25 marks.
4. Importance is attached to clear presentation of ideas, good expression and legibility of handwriting.

1.1 Assess the implications of using electronic database systems in place of using traditional file systems in a library? [15 marks]

1.2 Discuss the different components of the database system [10 marks]

2. The Faculty of Communication and Information Science has four departments and each department is identified by the Department Code. Each department is composed of a chairperson, lectures, staff development fellows, teaching assistants, secretary, parallel students and conventional students. Each student is identified by the Student_ Number, and a student may only belong to one department. Each department has several courses identified by the Course_ Code. There is only one lecturer allocated to each course, however each course may be offered in different departments. The student may take several courses at the same time.

2.1 With the aid of examples from the given scenario explain the following database concepts:
2.1.1   Primary key [3 marks]
2.1.2   Cardinality [3 marks]
2.1.3   Foreign key [3 marks]
2.1.4   Entity [3 marks]
2.1.5   Full functional dependency [3 marks]

2.2 Draw an ERD for the above scenario, state all assumptions you made. [10 marks]

3   Critique the role of a Database Administrator in a library information system. [25 marks]

4.1 As a database user you have been using your date of birth as your password for the past three years, discuss security risks associated with this, how would you rectify the situation.
                                                                                          [10 marks]

4.2 Data and software are vulnerable to threats of data destruction. Discuss database recovery procedures you would put in place within a library environment.   [15 marks]

3.   Discuss the challenges associated with Integrated Library Management Systems in Zimbabwe.   [25 marks]

6.1 Discuss the impact of a deadlock in a database transaction, and explain how deadlocks are resolved.   [10 marks]

6.2 Analyse three concurrency problems associated with database transactions.   [15 marks]

END OF PAPER