THE COPPERBELT UNIVERSITY
SCHOOL OF MATHEMATICS & NATURAL SCIENCES
CS235 & CS334 DATABASE TECHNOLOGY **07/08/2014**

Instructions: Answer all the questions and be as precise as possible in your explanations
Time: 2hrs

Q 1 Define the following database terms **[4 marks]**

i) Data dependency ii) File based system iii) Super key iv) Candidate key

Q 2 State and describe four(4) Limitations associated with File Based Systems. **[4 marks].**

Q 3 Briefly discuss the following advantages associated with Database Systems. **[4 marks]**

i) Control of data redundancy ii) Improved data integrity

iii) Enforcement of standards iv) Data consistency

Q 4 List all the stages of the database system development lifecycle and hence or otherwise State and briefly describe the two strategies to prototyping. **[6 marks]**

Q 5 State and briefly describe three integrity constrained that can be defined on a database. **[6 marks]**

Q 6 The Copperbelt University keeps track of each student's name, student number, NRC#, address, phone, birth date and sex. A student enrolls into a programme. A programme has name and code. A programme is offered by a department and a department can offer a number of programs. A programme is made up of courses and a course is identified by course number and course name. A student takes a number of courses and a course can be taken by many students. The university also keeps track of each Lecturer's name, Man number, phone and address. A Lecturer belongs to a department and lectures at least one course. A department belongs to a School and each school is identified by Name. A School is headed by a dean. Final year students are expected to do research projects before they can graduate; a project is identified by Name and number. Lecturers supervise these projects.

i) Draw an ER diagram for the above requirement specification **[8 marks]**

ii) Convert the ERD you have drawn into relational schemas. **[8 Marks]**

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