THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE
B.Sc. DEGREE PROGRAMME : LEVEL 04
CPU2241- DATABASE MANAGEMENT SYSTEMS
NO BOOK TEST I – 2014/2015

DURATION:One and Half Hours (1 ½ Hours)

Date: 07.02.2015 **Time: 4.00 p.m. – 5.30 p.m.**

Answer All Questions.

QUESTION 01

1. What is meant by **Database design**?
2. Fill in the blanks with suitable words.
   a) Data constitute the building blocks of _____.
   b) _____ is produced by processing data.
   c) Information is used to reveal the meaning of _____.
   d) It is even appropriate to refer _____ as the database system`s heart.
   e) In the relational database model rows are called _____.
   f) In the relational database model columns are called _____.
   g) If the primary key is composed of more than one attribute, we called it as _____.
   h) Attributes are qualified to be selected, but not selected as primary key are known as _____.
   i) An attribute which cannot be subdivided is called as_____.
   j) If a relationship exists when an association is maintained within a single entity is called as _____.
3. What is meant by **database management system**?
4. What are the three types of anomalies in file systems? Briefly describe each of them.
5. What are the three main disadvantages in file systems?

QUESTION 02

1. What are the five major parts of a**database system**?
2. State whether these statements are **true** or **false**. If **false** state why?
   a) Database is a collection of unrelated data.
   b) System administrator is a user in a database system.
   c) Unnecessarily duplicated data are called as metadata.
   d) When three entities are associated, we called it as a ternary relationship.
   e) Enterprise database is a single user database.
3. According to the classification of "**The database site locations**", what are the two types of **database management systems**?
4. State **five** database management system functions?
5. Briefly describe the conceptual data model and the Implementation data model and give one example for each model.

QUESTION 03

1. Briefly describe what the existence dependency is?
2. Consider the following set of requirements for a library management system.

   The library keeps track of each book`s ID, title, author`s name and no of units. ID identifies each book uniquely. A book may have several authors.

   An ID, name and address describe each member. ID is unique for each member. Each member must borrow at least one book. Each book may be borrowed by many members or may not be borrowed by a member.

   Once a member borrows a book, the borrowed data and return date should be stored appropriately.

   Each supplier has an ID, name and address. The value of ID is unique for each supplier. Each book must be supplied by at least one supplier. Supplier may not supply books when the no of units are sufficient, otherwise they may supply many books.

   Each publisher has an ID, name and address. ID is unique for each publisher. Each publisher must publish at least one book and each book must be published by only one publisher.

   a) Identify entities and their attributes. Draw each entity with its attributes using the ER notation (use Chen notation). When drawing, use standard naming conventions you learned.

   b) Draw the complete ER diagram with proper relationships.

      - You don`t need to show all the attributes of an entity (Because you showed them in the previous question). Show only the primary key of each Entity.
      - Show the proper connectivity of the relationships.
      - Show the cardinalities of each entity with each relationship.
      - Represent the relationship`s participation as optional or mandatory.
      - Use standard Chen notation to draw the ER diagram.