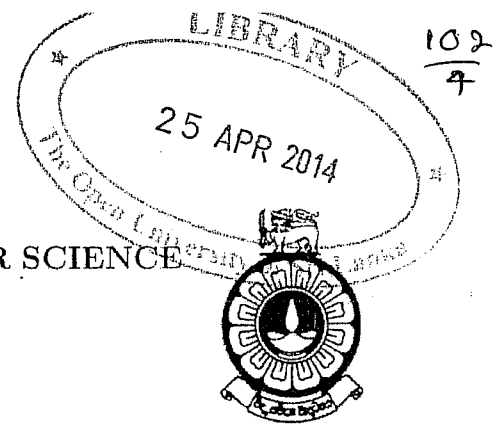


THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
B.Sc. DEGREE PROGRAMME : LEVEL 04
NO BOOK TEST I - 2013 / 2014
CPU 2241: DATABASE MANAGEMENT SYSTEMS
Duration: One Hour



Date: 24-02-2014

Time: 10.30 a.m - 11.30 a.m

Answer ALL Questions

QUESTION 01

1. What are the **2** main conditions an entity should satisfy to be a **Weak Entity**?
2. Carefully read the following scenario.

A research organization wants to keep information about the research they are doing and the publications made for completed research projects. Following are the details of their process and as a student who is doing Database Management Systems, you are asked to build a conceptual model for the given system.

A registered **Researcher** can start working on a new or ongoing **Research Project**. Once a researcher involves in a research project his **Project Joined Date** should store appropriately. A researcher can complete a research project or he can left at the middle of a project. Therefore the **Project Left Date** of a researcher should also be kept. One researcher can involve in several research projects and a research project should have at least one researcher. A research project can belong to many **categories** (*For example there can be research that can categorize under both computer science and mathematics*). There can be categories with no research projects yet.

Each researcher has given an **ID** to identify them. Apart from that, the organization keeps **researcher name**, **address**, **sex** and the **degree information**. A researcher may hold several degrees.

A research project should have a **project id**, **project name**, **project start date** and a **project end date**.

A **Category** should have an **ID** and a **category name**.

After completing a research project, a researcher may publish a **publication** on that research. One research project can have many publications and it is not a must that a research project to have a publication. A publication can be made only on one research project.

A publication should have an **ID** and a **title**.

If a researcher publishes a publication, then the **published date** of that publication should also be kept. This **date** should be stored separately as **day**, **month**, and **year**.

- (a) To draw the ER Diagram, 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 connectivities 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.

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