

CSE 3104 Database Lab

Online: 03

Total Marks: 10

**N.B. You need not to describe anything. Drawing E-RD will be enough.
Question#2 is an open ended question.**

1. Consider the following Library Management System (LMS): 07

System description: The existing manual Library Management System (LMS) should be replaced by an automated system. Library stores books on various **major subjects** such as Physics, Computer Science and so on. Each major subject may have further details such as: Computer Science can be further detailed (e.g. Networking, Database, AI and so on). Library procures books from different **publishers**, it contains information such as publisher name, country and reputation. The system should store **book's** basic information such as: title of book, publisher, year of publish, price, author. A book can have multiple authors. It can store **multiple copies** of the same book and uniquely identify each book efficiently.

Both **students** and **staffs** can borrow (normal borrow) books. Once a book is issued against a student or staff the book is **no longer available** until he/she returns it. Apart from normal borrow the system also allows to issue one book against a number of students (e.g. 3 students can take one book) and the number of students is not fixed. This mode of borrowing is called **shared** borrow. In shared borrow multiple student take one book but one student is assigned as **major user** while others are **associate users**. The major user is responsible for any unusual cases such as: book lost or stolen (this module will not deal it).

Make E-R Diagram of the system along with appropriate Cardinality. (You are free to make additional assumption for both entities and attributes)

2. Draw an E-R Diagram for an Online Shopping Website. (You are free to choose entity, attributes, relationship, cardinality as your wish) 03
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