



Daffodil International University

Department of Computer Science and Engineering

Faculty of Science and Information Technology (FSIT)

Final Examination, Semester: Fall-2016

Course Code: CSE311 Course Title: Database Management Systems

Section: All

Course Teacher: All

Time: 120 minutes

Answer all questions

Total Marks: 40

Q1: Consider the following relational schema.

[6*2=12]

Author (authorname, citizenship, birthyear)

Book(isbn, title, authorname)

Topic(isbn, subject)

Branch(libname, city)

Instock(isbn, libname, quantity)

Write the following queries using **Relational Algebra**:

- Give all authors born after 1940.
- Give the names of libraries in Sydney.
- Give the title of each book on the topic of either alcohol or drugs.
- Give the title and author of each book of which at least two copies are held in a branch located in Melbourne.
- Give the name of each Italian author who wrote an auto-biography.
- Give the cities where each book is held.

Q2: Consider the following relational schema

[6*2=12]

Book (BookId, Title, PublisherName)

Book_Authors (BookId, AuthorName)

Publisher (PublisherName, Address, Phone)

Book_Copies (BookId, BranchId, NoOfCopies)

Book_Loans (BookId, BranchId, CardNo, DateOut, DueDate)

Library_Branch (BranchId, BranchName, Address)

Borrower (CardNo, Name, Address, Phone)

Write the following queries using **SQL**:

- Find out which branch names contain the word “International” and what is the address of that Library?
- Show all the Publisher names in alphabetical order from Z to A.
- Find out the total number of books in each Library branch.
- Find out who are the Author and Publisher of the Book “Database Management System”?
- Change the Id of Daffodil International University branch to 1123.

- f) Find out which books have been borrowed from the branches having the following Ids 1121, 1123, 1125 and 1127.

Q3:

[12+4=16]

- a) Normalize the following table up to Third Normal Form. Be certain to indicate necessary constraints. **Candidate key {EmployeeID, BankID}**
- b) Find out Insert, Delete and Update Anomalies from the following table.

EmployeeID	EmployeeName	Month	Sales	BankID	BankName	Salary	BonusonSalary
E-101	Nafis Ahmed	July	1200	1	NFB	20000	1500
E-102	Himel Mahmud	August	850	2	AMCB	15000	900
E-103	Rayhan Amin	February	600	1	NFB	20000	1500
E-104	Asif Ahmed	January	350	3	SCB	25000	2000