ELIZADE UNIVERSITY

ILARA-MOKIN

FACULTY: BASIC AND APPLIED SCIENCES
DEPARTMENT: MATHEMATICS AND COMPUTER SCIENCE
2nd **SEMESTER EXAMINATION**
2016 / 2017 **ACADEMIC SESSION**

COURSE CODE: CSC 422

COURSE TITLE: Database Management II

COURSE LEADER: Dr. O. Oriola

DURATION: 2½ Hours

HOD's SIGNATURE

INSTRUCTION:

Candidates should answer Question ONE (1) and any other THREE (3) Questions

Students are warned that possession of any unauthorized materials in an examination is a serious assessment offence

Students are permitted to use ONLY a scientific calculator.

Question 1

a. What motivated the introduction of Database System in Storage Organisation?

b. Describe a typical Database Management System.

c. Explain the ACID properties of a Database Management System.

d. What make the significant differences between 2-Tier and 3-Tier Database Management System architectures? (Use real life Database Management System scenarios to show the two architectures

e. Design and explain the interaction between a Database Management Systems and its different categories of users.

f. List the entities, the attributes and the key attributes of Student Examination and Result Processing Database Management System.

Question 2

a. State and explain the characteristics of Entity-Relationship Database Model

b. Describe the types of (i.) Attributes (ii.) Mapping Cardinalities

c. Draw an Entity Relationship diagram that captures (1f)

Question 3

a. State and explain the characteristics of Relational Database Model

b. Explain Generalization, Specialization and Inheritance in Database Model.

c. Draw a Relational Database Model for (1f)

Question 4

A company database needs to store information about employees (identified by *ssn*, with *salary* and *phone* as attributes), departments (identified by *dno*, with *dname* and *budget* as attributes), and children of employees (with *name* and *age* as attributes). Employees *work* in departments; each department is *managed by* an employee; a child must be identified uniquely by *name* when the parent (who is an employee; assume that only one parent works for the company) is known. *Note: The information about a child once the parent leaves the company is not needed.*

a. Draw an E-R diagram for the information

b. Convert the E-R to Relational Database Model

Question 5

a. Discuss Data Independence in relation to Data Schema.

b. State and explain the types of Functional Dependency.

c. Given table Customer, write the SQL to (i.) create the table Customer; (ii.) select customer-name Johnson; (iii.) Replace 'Harrison' in customer-city with 'Peter' (iv.) delete the 4th record

Customer-id	*customer-name*	*customer-street*	*customer-city*	*account-number*
192-83-7465	Johnson	Alma	Palo Alto	A-101
019-28-3746	Smith	North	Rye	A-215
192-83-7465	Johnson	Alma	Palo Alto	A-201
321-12-3123	Jones	Main	Harrison	A-217
019-28-3746	Smith	North	Rye	A-201

Question 6

a. What are the significances of Normalization? Explain the three levels of Normalization.

b. State the Normalization rule the following relations do not conform to and put them in their correct forms.

i. Course

Course	Content
Programming	Java, c++
Web	HTML, PHP, ASP

ii. Student_Project

Stu_ID	Proj_ID	Stu_Name	Proj_Name

iii. Student_Detail

Stu_ID	Stu_Name	City	Zip