King Saud University

College of Computer and Information Sciences
Computer Science Department

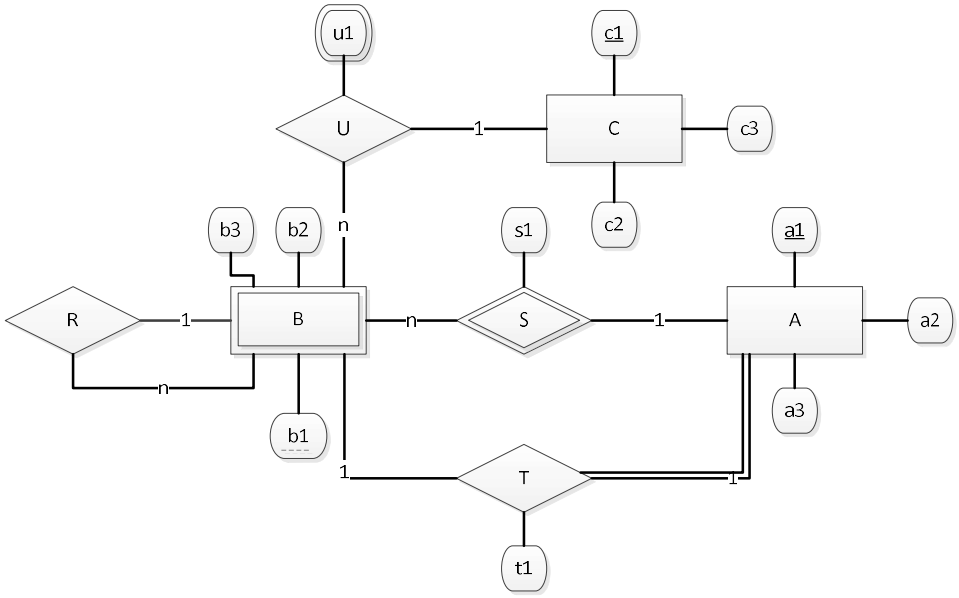
Course Code:	CSC 380
Course Title:	Principle of Database
Semester:	Spring 2016
Exercises Cover Sheet:	**Final Exam**

Student Name:	
Student ID:	
Student Section No.	

Tick the Relevant	Computer Science B.Sc. Program ABET Student Outcomes	Question No. Relevant Is Hyperlinked	Covering %
√	a) Apply knowledge of computing and mathematics appropriate to the discipline;	4,3	45
√	b) Analyze a problem, and identify and define the computing requirements appropriate to its solution	2	25
√	c) Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;	1	30
	d) Function effectively on teams to accomplish a common goal;		
	e) Understanding of professional, ethical, legal, security, and social issues and responsibilities;		
	f) Communicate effectively with a range of audiences;		
	g) Analyze the local and global impact of computing on individuals, organizations and society;		
	h) Recognition of the need for, and an ability to engage in, continuing professional development;		
	i) Use current techniques, skills, and tools necessary for computing practices.		
	j) Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;		
	k) Apply design and development principles in the construction of software systems of varying complexity;		

Question 1: (12 Marks)

Map the following ER diagram into a relation schema. Show the different constraints and specify how the total participation is reflected in your obtained schema.



Answer

Question 2: (10 Marks)

Let's consider the following database schema. This database represents flight trips and passengers.

- **Passenger** (passportID, issueDate, name, gender)
- **Airport** (aCode, name, cityName, country)
- **Flight** (flight#, airLineName, departure: FK*Airport*, arrival: FK*Airport*, departureTime, duration)
- **Trip** (of: FK*Flight*, departureDate, effectiveDepTime, expectedArrivalTime, status)
- **Booking** (bookingRef, bookingDate, expiryDate, fTrip: FK*Trip*)
- **BookingPassengers**(bRef:FKBooking, PassId: FK Passenger)

Draw the ER diagram of the flight trip passengers' database

Answer:

Question 3: (6 Marks)

1. Mapping a relationship that has a total participation, implies that the foreign key should be:
    a. Unique
    b. Not null
    c. Duplicated
    d. none of the above

2. The data of a composite key may be as follow:
    a. a partial key may have null value and the others not
    b. a partial key may have duplicated value
    c. at least one partial key should be unique
    d. none of the above
3. Index which has an entry for secondary key value is classified as
    a. hashing index
    b. dense index
    c. non dense index
    d. cluster index

Question 4: (12 Marks)

Given the following schema :

Doctor(DId, Dname, Specialty)
Patient(Pid, Pname, Age, Weight)
Diagnose(PId, DId, date, description)
Prescription(PId, MId, date, comment)
Medicine(Mid, MName, type)

Write down the following queries in **SQL**:

1. List the doctors who are specialist in Diabetes.
2. List the patients of Dr. Mshari
3. Retrieve the patients who were diagnosed by Dr. Mshari and Dr. Ghamdi
4. Retrieve all the medicine that were taken by "Fadh Zahrani" before 10/4/2016 and prescribed before 1/4/2016
5. Retrieve the number of patients who were diagnosed by Dr. Mshari before the 10/5/2016
6. List for each specialty and for each doctor the number of patient who were diagnosed.

Answer:

Result					
Question No.	**Relevant Student Outcome**	**SO is Covered by %**	**Full Mark**	**Student Mark**	**Assessor's Feedback**
1	c	30%	12		
2	b	25%	10		
3	a	15%	6		
4	a	30%	12		
Totals		100%	40		

I certify that the work contained within this assignment is all my own work and referenced where required. **Student Signature:** **Date:**		**Feedback Received:** **Student Signature:** **Date:**