University of Sargodha

BS 4th Term Examination 2017.

Subject: Computer Sc./I. T   Paper: Database System (CMP: 3450)

Time Allowed: 2:30 Hours   Maximum Marks: 80

Note: Objective part is compulsory. Attempt any three questions from subjective part.

Objective Part   (Compulsory)

Q.1. Write short answers of the following in 2-3 lines each.   (2*16)
- i.   Explain the difference between homogeneous and heterogeneous databases.
- ii.   Define Repository.
- iii. What is anomaly in database?
- iv.   What's meant by Transitive dependency?
- v.   What is Exclusive Locks?
- vi.   What us three tier architecture?
- vii. Describe Hashed File Organisation?
- viii. Explain the difference between logical and physical data independence.
- ix.   Define Integrity Constraints?
- x.   Define Data warehouse
- xi.   What's the purpose of Data Model?
- xii. Define Aggregation?
- xiii. What's the difference between Degree and Cardinality in relation?
- xiv. Differentiate between subtype and supertype.
- xv.   Define Disjointness constraint?
- xvi. Define Entity cluster?

Subjective Part (3*16)

Q.2. a. List five costs or risks associated with the database approach.
b. In which of the five phases of the SDLC do database development activities occur?

Q.3. a. List the four types of cardinality constraints, and draw an example of each.
b. The entity type STUDENT has the following attributes: Student Name, Address, Phone, Age, Activity, and No of Years. Activity represents some campus-based student activity, and No of Years represents the number of years the student has engaged in this activity. A given student may engage in more than one activity. Draw an ERD for this situation. What attribute or attributes did you designate as the identifier for the STUDENT entity? Why?

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            MILLENNIUM COLLEGE
            GRADE REPORT
            FALL SEMESTER 200X
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MAJOR:	Information Systems	

COURSE ID	TITLE	INSTRUCTOR NAME	INSTRUCTOR LOCATION	GRADE
IS 350	Database Mgt.	Codd	B104	A
IS 465	System Analysis	Parsons	B317	B

Q.4. Above figure shows a grade report that is mailed to students at the end of each semester. Prepare an ERD reflecting the data contained in the grade report. Assume that each course is taught by one instructor. Also, draw this data model using the tool you have been told to use in the course. Explain what you chose for the identifier of each entity type on your ERD.

Q.5. a. What is the primary purpose of normalization?
b. Normalize the diagram (given above for question 4) upto 3rd Normal Form.
Explain the differences between user views, a conceptual schema, and an internal schema as different perspectives ofthe same database

Q.6. By considering question no. 5, please write down following SQL command?
1. Create table having student as well as courses information. Also apply all relevant and necessary integrity constraints?
2. How many students got grade "A" from professor "Parsons"
3. How many students enrolled in subject "Database Mgt."
4. From which instructor, student "Emily Williams" is taking classes
5. Update instructor Codd location to B105.
6. Professor Parsons has left university. His data is no more required in instructor table? Write a command to fulfill this requirement. What message will display?