University of Sargodha

BS 4th Term Examination 2018

Subject: Computer Science/ 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 on your answer sheet.   (16*2)

i. Define Repository.
ii. What is anomaly in database?
iii. Differentiate between Entity integrity vs referential integrity?
iv. What's meant by Transitive dependency?
v. What is Exclusive Locks?
vi. What us three tier architecture?
vii. Explain the term 'view' in SQL.
viii. Describe Hashed File Organisation?
ix. Explain the difference between logical and physical data independence.
x. Define Integrity Constraints?
xi. Define Data warehouse
xii. Explain the difference between homogeneous and heterogeneous databases.
xiii. Shortly Explain Referential integrity constraint
xiv. What's the difference between Degree and Cardinality in relation?
xv. Define Disjointness constraint?
xvi. Define Entity cluster?

Subjective Part   (3*16)

Q.2. a. How are relationships between tables expressed in a relational database?
b. Explain the differences between user views, a conceptual schema, and an internal schema as different perspectives of the same database. Also explain Data Independence types with respect to different schemas?

Q.3. a) List the four types of cardinality constraints, and draw an example of each.

b) Draw an ERD for each of the following situations. (If you believe that you need to make additional assumptions, clearly state them for each situation.)

'A laboratory has several chemists who work on one or more projects. Chemists also may use certain kinds of equipment on each project. Attributes of CHEMIST include Employee ID (identifier), Name, and Phone No. Attributes of PROJECT include Project ID (identifier) and Start Date. Attributes of EQUIPMENT include Serial No and Cost. The organization wishes to record Assign Date—that is, the date when a given equipment item was assigned to a particular chemist working on a specified project. Achemist must be assigned to at least one project and one equipment item. Agiven equipment item need not be assigned, and a given project need not be assigned either a chemist or an equipment item. Provide good definitions for all of the relationships in this situation.'

MILLENNIUM COLLEGE
GRADE REPORT
FALL SEMESTER 200X

NAME:	Emily Williams	ID: 268300458
CAMPUS ADDRESS:	208 Brooks Hall	
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 fulfil this requirement. What message will display?