National Institute of Technology, Delhi

Name of the Examination: Mid-Term (B. Tech)

Branch   : CSE   Semester: III

Title of the Course: Database Management Systems   Course Code: CSB 202

Time: 2 Hours   Maximum Marks: 25

Ques1. Consider a two-dimensional integer array of size $n \times m$ that is to be used in 'C' programming language. Using the array as an example, illustrate the difference (a) between the three levels of data abstraction, and (b) between a schema and instances.   [5 Marks]

Ques2. Suppose you want to build a video site similar to YouTube. Consider disadvantages of keeping data in a file-processing system. Discuss the relevance of each of these points to the storage of actual video data and to metadata about the video, such as title, the user who uploaded it, tags, and which users viewed it.   [5 Marks]

Ques3. Consider the DBCLASS schema consisting of following tables: [15 Marks]

Professor (ssn, profname, status, salary)

Course (crscode, crsname, credits)

Taught (crscode, semester, ssn)

Each course has only one instructor in each semester. All professors have different salaries and different names. The status of a professor can be "Full", "Associate", and "Assistant". All courses also have different names. Create the above schema consisting of tables with appropriate constraints.

Write a SQL statement for following queries.

1. You query should return those professors who have never taught 'csc7710'.
2. Display the name(s) of the professor(s) who taught the most number of courses in S2006.
3. In alphabetical order of the names of professors, display the name of each professor and the total number of courses she/he has taught.
4. Delete those professors who taught less than 40 credits.
5. Display those courses that have been taught by all professors.
6. Return the professor who earns the second highest salary.
7. Change all the credits to 4 for those courses that are taught in f2006 semester.
8. Write a PL/SQL block to insert the data of five courses.
9. Write a PL/SQL block that returns the sum of the salaries for all professors.
10. Write a trigger to convert all blanks to NULL before any update occurs in taught.

Note: You need to attempt 7 out of 10 queries above.