June 2016

Bachelor of Computer Application (BCA) Examination

IV Semester

Database Management System

Time 3 Hours] [Max. Marks 50

Note : *Attempt all questions, choosing any two parts of each question. Each question carries equal marks.*

1. (a) Explain the overall structure of DBMS in, detail.
   (b) What is data model ? Explain any two data models with example.
   (c) Explain physical and logical data independence.
2. (a) Define the following :
   (i) Entity (ii) Degree of Relationship
   (iii) Primary Key (iv) Super Key
   (v) Candidate Key.
   (b) Differentiate between the following :
   (i) Strong Entity and Weak Entity.
   (ii) Single- valued Attribute and Multi-valued Attribute.
   (c) Consider the following scenario :

St. Xavier College is divided into several schools. A dean who is a professor administers each school. Each Dean can administer only one school. Each school is composed of several departments. Each department belongs to only a single school. Each department may offer courses. A course may offer several sections (classes). A class belongs to exactly one course. Each department may have many professor assigned to it only one professor can chair the department to which he is assigned. Each professor may teach up to four classes: each class is a section of course. A professor may also be on a research contract and teach no classes at all A student may enroll in several classes, but he takes each class only once during any given enrollment period. Each department has several students whose major is offered by that department. However, each student has a single major and is therefore associated with a single department. Each student has an advisor in his or her department; each advisor counsels several students. An advisor is also a professor, but not all professors advise student.

Draw an entity relationship diagram for the case, stating any assumptions you deem necessary.

3. (a) Consider the following schema :
EMP (eno, ename, dt_birth, address)
DEPT (dno, dname, location)
Write SQL command :
(i) To create the EMP and DEPT table.
(ii) to insert a record in EMP table.
(iii) To insert a record in DEPT table.
Make suitable assumptions about type and size of attributes.
(b) Explain Data Definition Language and Date Manipulation Language with example queries.
(c) Explain nested stab query with example.

4. (a) Explain join dependency with example.
(b) Show that, if a relational database is in BCNF, then it is also in 3NF.
(c) What are cursors? explain using an example.

5. (a) What is the significance of Codd's rules in RDBMS? Write any three Codd's rule.
(b) Explain the difference between Database Admintstrator and Data Administrator.
(c) Write short note on Database Security.

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