VIT

Vellore Institute of Technology

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

FALL SEMESTER 2018-19

CAT – I EXAMINATIONS

CSE 2004 – Database Management Systems

Course Name: B.Tech Slot: D1 Max. Marks: 50

Answer ALL Questions (5 * 10 = 50)

1. a. List out any five disadvantages of a file based system. (5)

   b. What is the difference between logical data independence and physical data independence? Which one is harder to achieve? Why? (5)

2. a. As per the rules of the firm, how can you limit the entry of such ambiguous data in to the table at the database level? Illustrate with Constraints for the following statements
   i. Every product should have a name. (1)
   ii. Every product should have a Product code that is distinct and the length of the product code should be equal to six digits. (2)
   iii. Product quantity should be zero or greater than zero and less than 200. (2)

   b. List out the important role plays in representing information about the real world in a database? Explain briefly. (5)

3. a. What are the responsibilities of a DBA? If we assume that the DBA is never interested in running his or her own queries, does the DBA still need to understand query optimization? Why? (5)

   b. Model an ER diagram for the scenario given below (5)

   Students are assigned to proctors. Every proctor can be assigned maximum of 20 students. Every student should have a guardian. Students can have maximum of 2 guardians. Guardians are allowed to register multiple phone numbers. Students should register for courses and every course is offered in several venues and slots.

4. a) Answer the following (5)

   i. Is it mandatory for a foreign key to be a primary key in another table?
   ii. Can foreign keys be null values in the child relation?
   iii. After enforcing foreign key constraint using on delete cascade rule, Can you delete the record in the child relation whose foreign key is not null before deleting the record in the parent relation?
   iv. Can foreign keys have duplicate values?
   v. Can there exist more than one foreign key in a relation?

   b) Reason out why Parent Keys Not Found Error occur during the enforcement of foreign keys and how will you fix it with a suitable example. (5)

5. Map the given ER model to relational schema. Identify all the Constraints. (10)