10CS54

Fifth Semester B.E. Degree Examination, June/July 2018
Database Management Systems

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting at least TWO questions from each part.*

PART – A

1 a. Define : (i) Schema   (ii) Data model   (iii) Database state   (iv) Catalog   (v) DBMS. **(05 Marks)**

   b. What are different types of End users? Discuss the main activities of each. **(05 Marks)**

   c. Explain three schema architectures. **(06 Marks)**

   d. List the advantages of DBMS. **(04 Marks)**

2 a. Write the different notation used in ER diagram. **(08 Marks)**

   b. Design an ER-diagram for keeping track of information about a company database taking into account of least five entities. **(08 Marks)**

   c. Illustrate recursive relationship. **(04 Marks)**

3 a. Define the following terms with an example of each:
   (i) Superkey   (ii) Domain   (iii) Tuple   (iv) Nulls.
   (v) A relational database Schemas   (vi) Entity integrity constraint. **(12 Marks)**

   b. Explain DIVISION operation, find the quotient for the following: $\dfrac{A}{B_1}$, $\dfrac{A}{B_2}$ and $\dfrac{A}{B_3}$ where

   A, B_1, B_2 and B_3 are, **(08 Marks)**

   A=

S_{NO}	P_{NO}
S_1	P_1
S_1	P_2
S_1	P_3
S_1	P_4
S_2	P_1
S_2	P_2
S_3	P_2
S_4	P_2
S_4	P_4

   B_1=

P_{NO}
P_2

   B_2=

P_{NO}
P_2
P_4

   B_3=

P_{NO}
P_1
P_2
P_4

4 a. Write SQL syntax with example for the following SQL statements:
   (i) CREATE TABLE   (ii) SELECT Statement (iii) UPDATE Cammand
   (iv) ALTER TABLE **(08 Marks)**

   b. Consider the following schema and write the SQL queries:
   STUDENT (<u>Snum</u>, Sname, Major, Level, Age)
   CLASS (<u>Cname</u>, Meetsat, room, fid)
   ENROLLED (<u>Snum</u>, Cname)
   FACULTY (<u>Fid</u>, Fname, deptid)
   (i) Find the names of all Juniors (level = JR) who are enrolled in a class '5A', OR '5B'.
   (ii) List all the students name where there age is greater than average the age of all students.
   (iii) Find the names of a faculty member who teaches to class '5A' and '5B'.
   (iv) List the names of all students beginning with 'S' and ending with letter 'X'. **(12 Marks)**

PART – B

5   a.   How is view created and dropped? What are the problems associated with updating views?
         (08 Marks)

    b.   Write a note on Aggregate functions in SQL with examples.   **(12 Marks)**

6   a.   What is the need for normalization? Explain the 1NF, 2NF and 3NF with examples.
         (14 Marks)

    b.   Explain the concepts of BCNF.   **(06 Marks)**

7   a.   Define multivalued dependency and explain 4NF with an examples.   **(12 Marks)**
    b.   Discuss the null value and dangling tuple problems.   **(08 Marks)**

8   a.   What are the ACID properties? Explain.   **(08 Marks)**
    b.   Explain 2PL.   **(04 Marks)**
    c.   What is a schedule? Explain with examples serial, non serial and conflict serializable schedules.   **(08 Marks)**

* * * * *