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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: $\frac{A}{B_1}$, $\frac{A}{B_2}$ and $\frac{A}{B_3}$ where (08 Marks)

A, B₁, B₂ and B₃ are,
$$A = \begin{array}{|c|c|} \hline S_{NO} & P_{NO} \\ \hline S_1 & P_1 \\ \hline S_1 & P_2 \\ \hline S_1 & P_3 \\ \hline S_1 & P_4 \\ \hline S_2 & P_1 \\ \hline S_2 & P_2 \\ \hline S_3 & P_2 \\ \hline S_4 & P_2 \\ \hline S_4 & P_4 \\ \hline \end{array}$$

$$B_1 = \begin{array}{|c|} \hline P_{NO} \\ \hline P_2 \\ \hline \end{array}$$

$$B_2 = \begin{array}{|c|} \hline P_{NO} \\ \hline P_2 \\ \hline P_4 \\ \hline \end{array}$$

$$B_3 = \begin{array}{|c|} \hline P_{NO} \\ \hline P_1 \\ \hline P_2 \\ \hline P_4 \\ \hline \end{array}$$

- 4 a. Write SQL syntax with example for the following SQL statements:
 (i) CREATE TABLE (ii) SELECT Statement (iii) UPDATE Command
 (iv) ALTER TABLE (08 Marks)
- b. Consider the following schema and write the SQL queries:
 STUDENT (Snum, Sname, Major, Level, Age)
 CLASS (Cname, Meetsat, room, fid)
 ENROLLED (Snum, Cname)
 FACULTY (Fid, 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 view? (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)

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