R16

Code No: 134AP

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, April - 2018

DATABASE MANAGEMENT SYSTEMS

(Common to CSE, IT)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A **(25 Marks)**

1.a) How to represent the strong Entity set and Weak entity set in ER-Model? [2]
b) Explain about various integrity constraints in relational model. [3]
c) What are the SQL statements are used to retrieve and modify the database? [2]
d) Let R =(ABC) and S=(DEF) let r(R) and s(S) be relations on schema R and S. Give an expression in the Domain relational calculus that is equivalent to each of the following. [3]
i) $\sigma_{B=25}(r)$ ii) $\prod_{A,F,}(\sigma_{C=D}(rXs))$
e) What is schema refinement? [2]
f) Define Multi valued dependencies and join dependency. [3]
g) What is serilizabuilty? [2]
h) Explain Failure with loss of nonvolatile storage. [3]
i) What is primary and secondary indexing? [2]
j) What is the difference between indexing and hashing? [3]

PART-B **(50 Marks)**

2. Give an overview of database architecture. [10]

OR

3.a) Give an overview of database languages – DDL and DML.
b) What are speciality databases? Explain. [5+5]

4.a) Explain the fundamental operations in relational algebra with examples.
b) What aggregate operators does *SQL* support? Explain with examples. [5+5]

OR

5.a) What is trigger? Explain how to implement triggers in SQL?
b) Explain the following Operators in SQL with examples:
i) SOME ii) IN iii) EXCEPT v) UNION. [5+5]

6.a) What do you mean by scheme refinement? Explain how it can be accomplished?
b) What are the problems caused by redundancy and decomposition of relation? [5+5]

OR

7.a) Compute the closure of the following set of functional dependencies for a relation scheme. R(A,B,C,D,E,F,G,H), F={ AB→C, BD→EF, AD→G,A→H}
List the candidate keys of R.
b) Explain 4NF, 5NF normal forms with examples. [5+5]

8.a) What is transaction? Explain the properties of transaction.
b) Give an overview of validation based protocol. [5+5]

OR

9.a) Explain about the Multiple granularity Concurrency Control protocol.
b) Explain about remote backup system. [5+5]

10.a) Give acomparison of various file organizations.
b) Describe the Insertion and Deletion Operations in B+ trees. [5+5]

OR

11. How does *Extendable hashing* use a directory of buckets? How does it handles the insert and delete operations? [10]

---ooOoo---