

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.
i). $\sigma_{B=25}(r)$ ii). $\prod_{A,E}(\sigma_{C=D}(rXs))$ [3]
- e) What is schema refinement? [2]
- f) Define Multi valued dependencies and join dependency. [3]
- g) What is serilizabuilt? [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. $R(A,B,C,D,E,F,G,H)$, $F=\{ AB \rightarrow C, BD \rightarrow EF, AD \rightarrow G, A \rightarrow H \}$
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 a comparison 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 handle the insert and delete operations? [10]

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