VR14 Reg. No: | | | | | | | | | | |

VELAGAPUDI RAMAKRISHNA

SIDDHARTHA ENGINEERING COLLEGE

(AUTONOMOUS)

III/IV B.Tech. DEGREE EXAMINATION, OCTOBER, 2018

Fifth Semester

COMPUTER SCIENCE AND ENGINEERING

14CS3501 DATABASE MANAGEMENT SYSTEMS

Time: 3hours ***Max. Marks: 70***

Part-A is compulsory

Answer One Question from each Unit of Part-B

Answer to any single question or its part shall be written at one place only

PART-A

10 x 1 = 10M

1. a. Differentiate physical and logical data independence.
   b. List the main functionalities of a database administrator.
   c. What are the characteristics of data warehouses?
   d. Differentiate relationship type and relationship set.
   e. Define primary key.
   f. Define functional dependency.
   g. What are the transaction properties?
   h. What are the benefits of a two-phase locking protocol?
   i. Differentiate SQL and NOSQL.
   j. Draw the HBase distributed storage architecture.

PART-B

4 x 15 = 60M

UNIT-I

2. a. Explain the advantages of database management system over traditional file processing system. **7M**

   b. Explain the three-schema architecture with neat diagram. **8M**

(or)

3. a. What is data model? Explain different types of data models. **7M**

   b. Describe the functionalities of a data warehouse. **8M**

UNIT-II

4. a. Design an E-R diagram for keeping track of the exploits of your favorite sports team. You should store the matches played, the scores in each match, the players in each match and individual player statistics for each match. Summary statistics should be modelled as derived attributes. **8M**

   b. Explain the steps of ER–to–Relational mapping. **7M**

(or)

5. a. Explain the various relational algebra operations with examples. **8M**

   b. Write short notes on weak entity types by demonstrating with example. **7M**

UNIT-III

6. a. Define normalization and explain 1NF and 2NF using appropriate examples. **10M**

   b. Draw and explain the state transition diagram of a transaction. **5M**

(or)

7. a. How BCNF is differing from 3NF? Explain with an example. **7M**

   b. Explain ARIES recovery algorithm. **8M**

UNIT-IV

8. a. Explain graph databases. **7M**

   b. Describe storing and accessing data from HBase. **8M**

(or)

9. a. Describe storing and accessing data from MongoDB. **7M**

   b. Write short notes on **8M**

   i) Sorted ordered column-oriented stores

   ii) Distributed ACID systems

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