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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. - Computer Science and Engineering

Semester End Examination; Dec - 2016/Jan - 2017

Data Base Management System

Time: 3 hrs   Max. Marks: 100

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT - I

1 a.	Explain any six advantages of using a DBMS.	10
b.	Explain the constraints on binary relationship types with example.	10
2 a.	Discuss the different types of user-friendly interfaces and the types of users who typically use each.	7
b.	A bank offers three types of accounts; loan, current and savings. It operates a number of branches and a client of the bank can have multiple accounts. Accounts can be joint or single. Identify the entities of interest and show their attributes. What relationships exist among these entities? Draw the corresponding E-R diagram.	8
c.	Define the following terms with an example: i) Data Independence ii) Strong entity iii) Role names.	5

UNIT - II

3 a.	Explain the entity integrity and referential integrity constraints. Why each is considered important?	6
b.	Discuss the following relational algebra operations. Illustrate with an example: i) SELECT ii) DIFFERENCE.	8
c.	Briefly discuss about the EQUI JOIN and NATURAL JOIN.	6
4 a.	With an example, explain different set operations in relational algebra.	10
b.	Define the following terms : i) Domain ii) Foreign key iii) Relational data base schema iv) Relational database state.	10

UNIT - III

5 a.	Describe the six clauses in the syntax of an SQL retrieval query. Which of the six clauses are required and which are optional?	6
b.	Consider the following employee database: Employee (<u>employee-name</u>, street, city) Works (<u>employee-name</u>, Company-name, salary) Company (<u>Company-name</u>, city) Manages (<u>employee-name</u>, manager-name)	8

Write SQL queries for the following :

i) Find all employees in the database who live in the same cities as the companies for which they work.

ii) Find all employees who earn more than the average salary of all employees of their company.

iii) Find the company that has the smallest payroll.

iv) Give all managers of SBM a 10% raise.

c. Explain Exists and Unique functions in SQL with example.   6

6 a. Explain:

i) Specification of views in SQL   ii) Triggers in SQL.   10

b. Explain Insert, Delete and Update statements in SQL with example.   10

UNIT - IV

7 a. State the informal guidelines for relational schema design. Illustrate how violation of there guidelines may be harmful.   12

b. What is normalization? Explain second normal form with example.   8

8 a. Which normal form is based on the concept of multi valued functional dependency? Explain the same with an example.   10

b. Explain BCNF with an example.   10

UNIT - V

9 a. Define the violations caused by each of the following: dirty read, non repeatable read and phantoms.   6

b. Explain the ACID properties of a database transaction.   6

c. Describe the shadow paging recovery technique.   8

10a. Discuss the deferred update technique of recovery. What are the advantages and disadvantages of these techniques? Why is it called the NO-UNDO / REDO method?   10

b. Explain Serial, Non-serial and Conflict serializable schedules.   10

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