

Code No: 823AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**MCA III Semester Examinations, August - 2017****DATABASE MANAGEMENT SYSTEMS****Time: 3hrs****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**5 × 5 Marks = 25**

- 1.a) Define instance and schema. [5]
- b) What is domain integrity? [5]
- c) Explain about inclusion dependency. [5]
- d) What are recoverable schedules? [5]
- e) Explain Clustered Indexes. [5]

PART - B**5 × 10 Marks = 50**

2. Describe the Structure of DBMS with neat sketch. [10]

OR

3. Discuss about the Conceptual database Design with the ER Model. [10]

4. Consider the following schema for a company database
Employee (Name, SSN, Address, Sex, Salary, Dno)
Department (Dname, Dnumber, MGRSSN, MGRSTART Date)
Dept-Locations (Dnumber, Dlocations)
Project (Pname, Pnumber, Plocations, Dnum)
Works-On (ESSN, PNo, Hours)
Dependent (ESSN, Dependent-name, Sex, Bdate, Relationship)

Give the queries in SQL:

- a) Retrieve the names and address of employees who work for Department 10.
- b) List all the project names on which employee "Shyam" is working.
- c) Retrieve all employees in Dept. 5 whose salary is between 50,000 and 80,000.
- d) Retrieve the name of each employee who works on all the projects controlled by department number 2.
- e) Retrieve the names of employees who have no dependents. [10]

OR

5. Discuss about Complex integrity constraints in SQL. [10]

6. Consider the relation R, which has attributes that hold schedules of courses and sections at a university:
R = {CourseNo, SecNo, OfferingDept, Credit-Hours, CourseLevel, InstructorSSN, Semester, Year, Days_Hours, RoomNo, NoOfStudents}.
Suppose that the following functional dependencies hold on R:
 $\{CourseNo\} \rightarrow \{OfferingDept, CreditHours, CourseLevel\}$
 $\{CourseNo, SecNo, Semester, Year\} \rightarrow \{Days_Hours, RoomNo, NoOfStudents, InstructorSSN\}$
 $\{RoomNo, Days_Hours, Semester, Year\} \rightarrow \{Instructorssn, CourseNo, SecNo\}$
Try to determine which sets of attributes form keys of R. How would you normalize this relation? [10]
- OR
7. Write loss-less Boyce Codd Normal Form decomposition algorithm and explain with example. [10]
8. Explain the concept of Deadlock avoidance and prevention in detail. [10]
- OR
9. Describe Validation-based protocols. [10]
10. Write about the various levels of RAID with neat diagrams. [10]
- OR
11. Explain and Compare Extendible Hashing with Linear Hashing. [10]

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