Code No: 823AC **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA III Semester Examinations, January - 2018
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) What is the purpose of database system? [5]
b) Differentiate between tuple and domain relational calculus. [5]
c) Define functional dependency. Quote two examples. [5]
d) What is check pointing? [5]
e) Compare heap file organization with hash file organization. [5]

PART - B

5 × 10 Marks = 50

2. List the four categories of database users and explain their interfaces to database management system and their functionality. [10]

OR

3. With suitable examples discuss the following integrity constraints on DBMS:
a) Candidate key b) domain constraint c) primary key d) foreign key [10]

4. Describe the six primitive operators of relational algebra with examples. [10]

OR

5. Consider the following database schema to write queries in SQL
Sailor (sid, sname, age, rating)
Boats (bid, bname, bcolor)
Reserves (sid, bid, day)
a) Find the names of the sailors who have reserved at least two boats.
b) Find the colors of the boats reserved by sailor 'Raj'.
c) Find the sailor who have reserved all red boats. [10]

6. What is redundancy? Explain the problems caused by redundancy in database design.[10]

OR

7.a) Why is BCNF strict than 3NF?
b) Discuss inclusion dependencies. [5+5]

8. Explain how two phase locking protocol ensures conflict serializability. [10]

OR

9.a) What are the merits of validation based protocol over time stamp based protocol?
b) How to deal with deadlocks in databases? [5+5]

10. Describe the following terms with respect to disk organization: track, sector, cylinder, access time, rotational delay. [10]

OR

11. What is multi level indexing? What is its purpose in DBMS? Is B+ tree a multi level indexing? Justify your answer. [10]

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