JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. Tech II Semester Examinations, February - 2017
ADVANCED DATABASES
(Computer Science Engineering)

Time: 3 Hours   Max. Marks: 60

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 8 marks and may have a, b, c as sub questions.

PART - A
                                                                    5 × 4 Marks = 20

1.a)	Define data abstraction and types of data models.	[4]
b)	What are the desirable properties of decomposition?	[4]
c)	Define ACID properties.	[4]
d)	Distinguish between Extendible versus linear hashing.	[4]
e)	Explain distributed recovery.	[4]

PART - B
                                                                    5 × 8 Marks = 40

2. Consider the following relations
Sailors (sid, sname, rating, age)
Boats (bid, bname, color)
Reserves (sid, bid, day)
Write the statements in Relational Algebra, Relational Calculus, Domain Relational Calculus and SQL for the following questions.
a) Find the names of sailors who have reserved a Red boat.
b) Find the names of sailors who have reserved at least one boat.
c) Find the names of sailors who have reserved a Red and a Green boat.
d) Find the names of sailors who have reserved a Red or a White boat.
e) Find the names of sailors who have reserved all boats.   [8]

OR

3. What are the applications of data base systems? Discuss how database systems are superior than file systems. What are database languages? Explain them.   [8]

4. Let R = (A, B, C, D, E)
$A \rightarrow BC$, $CD \rightarrow E$, $B \rightarrow D$, $E \rightarrow A$ be the functional dependencies that hold over R. Give a loss-less decomposition of R into BCNF.   [8]

OR

5. Discuss the need for schema refinement. Explain the fourth and fifth normal form and inclusion dependencies.   [8]

6. Contrast ARIES with shadow–page based recovery schemes. [8]

OR

7. Explain lock based concurrency control process and concurrency control without locking. [8]

8. Explain file organization types and its techniques. [8]

OR

9. What are index data structures? Explain with suitable examples the hash based indexing. [8]

10. Explain the distributed catalog management and query processing. [8]

OR

11. Describe the three main architectures for distributed DBMS. [8]

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