CLASS: IMSC   SEMESTER : V
BRANCH: MATH   SESSION : MO/19

SUBJECT: CS4105 DATABASE MANAGEMENT SYSTEM

TIME: 3 HOURS   FULL MARKS: 60

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)   Who are sophisticated users?   [2]
Q.1(b)   What is data independence? Explain its types.   [4]
Q.1(c)   What are database administrator's roles?   [6]

Q.2(a)   what are different types of attributes? Explain each.   [2]
Q.2(b)   Explain recursive relationship set.   [4]
Q.2(C)   Explain mapping cardinality?   [6]

Q.3(a)   What do double lines and double ellipses represent in ER model?   **[2]**
Q.3(b)   Consider the following tables: Loan(loan number, branch name, amount) borrower(customer name,   [4]
          loan number)
          Use relational algebra to write the following queries:
          1. Display loan number and amount from loan table.
          2. Find the names of all customers who have a loan at the branch name " perryridge" branch.
Q.3(c)   Explain the different types of joins. What are different types of set operations?   [6]

Q.4(a)   Why should we avoid placing attributes whose values may be null frequently?   [2]
Q.4(b)   Explain the difference between full functional dependency and partial functional dependency.   [4]
Q.4(c)   What property should a decomposition have to be dependency preserving? Explain.   [6]

Q.5(a)   Can secondary indices be sparse? Why?   [2]
Q.5(b)   How are clustering indices different from non clustering indices? In B+ trees, each leaf node must not   [4]
          have fewer than how many values?
Q.5(C)   Explain multilevel indices?   [6]

Q.6(a)   What is cost of accessing data from disk?   [2]
Q.6(b)   Explain file scans.   [4]
Q.6(c)   What are two types of scan algorithms to implement selection operation? Explain.   [6]

Q.7(a)   What is blind write?   [2]
Q.7(b)   What is view serializability? Explain with examples.   [4]
Q.7(c)   Explain rigorous and strict two phase locking protocols.   [6]

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