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Roll No ....

MCA-202

M.C.A. II Semester

Examination, November 2018

Database Management System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) What is data independence? Describe the three schema architecture.   7

   b) What is the role of database administrator? Also explain data dictionary.   7

2. a) Describe the generalized architecture of a database system.   7

   b) Differentiate between the following: 7

   i) Strong and weak entity set

   ii) Generalization and specialization

3. a) Explain about the following relational algebra operators by giving suitable example: 7

   Union, Division, Rename, Difference.

   b) Explain Join, Natural join, Outer join, Full outer join, left outer join and right outer join with example.   7

4. a) What is Null? Give an example to illustrate testing for Null in SQL.   7

   b) What is recursive closure? Why is it not possible to define this operation in relational algebra?   7

5. a) Give an example of a relation schema R and a set of dependencies such that R is in BCNF, but is not in UNF.7

   b) Given the relation R(*ABCDE*) with FDS: 7

   $$(A \rightarrow BCDE, B \rightarrow ACDE, C \rightarrow ABDE)$$

   What are the join dependencies of R? Give the lossless decomposition of R.

6. a) Explain be recovery process after system failure using checkpoint.   7

   b) Discuss the factor that does not appear in centralized systems that affect concurrency control and recovery in distributed system.   7

7. a) What is data fragmentation? Explain horizontal, vertical and mixed fragmentation.   7

   b) What are multimedia databases? How is it different with conventional DBMS.   7

8. a) What are object oriented database? Write down in advantages and disadvantages.   7

   b) Write short notes on (any two):   7

   i) RAID

   ii) DBTG model

   iii) B+ tree organisation

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