Roll No .....

MCA-202

M.C.A. II Semester

Examination, Novembe

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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