



Name :
Roll No. :
Invigilator's Signature :

CS/M.Tech (IT)/SEM-2/PGIT-203/2013

2013

**ADVANCED TOPICS IN DATABASE
MANAGEMENT**

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer any *five* questions from the following. 5×14

1. a) What is database or database management systems (DBMS) ? What's the difference between file and database ? Can files qualify as a database ? What's difference between DBMS and RDBMS ? What is a catalog ? 2×5
b) State the differences of advantages and disadvantages of DBMS. 4
2. What are the various methods of controlling concurrency ? What would happen if there is no rollback mechanism (undo mechanism) in databases ? Tell with an example. What is Phantom Phenomenon ? $5 + 7 + 2$



3. a) Explain concurrency control with time stamping.
Explain with an example. 8
- b) Explain about Deadlocks. 6
4. a) Give the following relations :
Vehicle (reg_no, make, colour)
Person (eno, name, address)
Write expressions in relational algebra to answer the following queries :
- i) List the names of persons who do not own any car.
ii) List the names of persons who own only Maruti Cars. 2×3
- b) Define check point and its impact on database recovery. 8
5. Write short notes on any two of the following : 2×7
- a) Equivalence rules
b) BCNF
c) Object oriented database
6. What is Query Optimization ? Explain Cost-based query optimization and transformation based optimization. $4 + 5 + 5$
7. Draw and explain the Architecture for Distributed Database ? $6 + 8$

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