c) Mention the difference between deferred database updation and immediate database updation. Also, mention the difference between the log based recovery mechanism for the two cases. 6

7. a) Compare merge algorithm and hash algorithm for joining two relations. 4

b) Describe the timestamp based protocol for WRITE operation by a transaction. 6

c) What are cascading rollback and conflict sematizable schedule? 3+4

d) What are the advantages of checkpoint? 3

8. Write short notes on the following :

a) Security feature of DBMS. 4

b) Advantage of DBMS over file processing based system. 5

c) Outer join. 4

d) Ordered vs unordered file. 4

e) Secondary Index. 3

BACHELOR OF ENGINEERING IN COMPUTER SCIENCE & ENGINEERING EXAMINATION, 2012

(3rd Year, 1st Semester, Supplementary)

DATABASE MANAGEMENT SYSTEMS

Time : Three Hours Full Marks - 100

Answer any **Five**

1. a) Define the following :

i) Candidate key

ii) Foreign key

iii) Weak entity type

iv) Entension of a relation 3+4+4+2

b) Write down the function of :

i) Data Manager

ii) DML Pre-compiler 4+3

2. a) What is ER diagram? Define Entity and Relation. 6

b) Consider, A and B as two entity types. a_1 (unique), a_2, a_3 are the attributes of A. b_1 (unique), b_2, b_3 are the attributes of B. Many to many relation exists from A to B. Write down the SQL statements to create the necessry tables. 10

c) What is Participation Constraint. 4

3. a) Why do we normalize a schema? Explain the various anomalies. 8

b) Consider a schema to store the following information regarding each student :

Roll, Name, Address and for each subject he / she studies store Sub_code, Sub_name, Full_marks, Pass_marks and his / her Score. Assume, the following FDs.

Roll → Name, Address
Sub_code → Sub_name, Full_marks, Pass_marks
Roll, Sub_code → Score.
Normalize upto 3NF showing the steps. Indicate the foreign keys. 12

4. Consider the following relations :
STUDENT (ROLL, NAME), SUBJECT (SCODE, SNAME), ENROLLMENT (ROLL, SCODE)

Write down the relational algebra and relational calculus expression for the following :

a) Find out the roll of the students who have enrolled in all the subjects. 5+5

b) Find out the roll of the students who have enrolled in none of the subjects. 5+5

5. Consider the following tables :
DEPT (DCODE, DNAME, MGR_CODE)
EMP (ECODE, ENAME, DCODE, BASIC)

Assume, MGR_CODE is FK referring to ECODE. Write down the SQL statements for the following :

a) for each department, show department name and name of the manager. 4

b) for each department, show department name and total basic. 4

c) Delete the records from EMP for the department with MGR_CODE = 'E007'. 4

d) Find the name of the employees with highest basic. 4

e) Increase the basic pay of the employers by Rs.1,000/- for the department with name 'FINANCE'. 4

6. a) Consider the tables as STUDENT (ROLL, NAME), RESULT (ROLL, SCODE, MARKS) and SUMMARY (ROLL, TOTAL)

Write a PL/SQL block to store Roll and Total score for all students in SUMMARY. 8

b) What is a transaction? Describe the ACID properties. 6