(Please write your Exam Roll No.) *Exam Roll No. ……*

END TERM EXAMINATION

SECOND SEMESTER [MCA] MAY-JUNE-2013

Paper Code: MCA 108	*Subject: Data Base Management System*

Time : 3 Hours **Maximum Marks : 60**

Note : Attempt any five questions including Q. no. 1 which is compulsory.
Select one question from each units.

Q1. Answer the following: **(2*10=20)**

(a) Define the following terms:
  (a) DBMS (b) Data Independence
(b) How is traditional file processing approach different than DBMS approach? Explain.
(c) What do you mean by generalization and specialization? Explain .
(d) Define the referential integrity constraints in Relational Databases.
(e) Why we may choose to define a view?
(f) Explain briefly distributed databases.
(g) How can the database be recovered through Shadow Paging Scheme?
(h) Differentiate between 3NF and BCNF with example.
(i) Differentiate between implicit and explicit cursors.
(j) When and how is the trigger created?

UNIT I

Q2.

(a) Explain the three tier architecture of Data base Management System. **(4)**
(b) A company called M/s ABC Consultants Ltd. Has an entity EMPLOYEE with a number of employees having attributes such as EMP-ID, EMP-NAME, EMP-ADD and EMP-BDATE. The company has another entity PROJECT that has several projects having attributes such as PROJ-ID, PROJ-NAME and START-DATE. Each employee may be assigned to one or more projects or may not be assigned to one or more projects. A project must have at least one employee assigned and may have any number of employees assigned. An employee's billing rate may vary by project, and the company wishes to record the applicable billing rate (BILL-RATE) for each employee when assigned to a particular project.

By making additional assumptions, if so required, draw an E-R diagram for the above situation. **(6)**

Q3.

(a) Differentiate between Hierarchical, Network & Relational Database Management Systems. **(6)**
(b) Explain Categorization and Aggregation with the help of EER Diagram. **(4)**

UNIT II

Q4.

(a) What is a relation? What are primary, candidate and foreign keys? **(4)**
(b) Consider the following relational schema **(6)**
Account (account-number, branch-name, balance)
Loan(Loan-number, branch-name, balance)
Depositor(Customer-name, Account-number)
Borrower(Customer-name, Loan-number)
Formulate the relational algebra statements for the following (Assume keys and additional information(as per requirement):
(a) Find all loan numbers for loan made at Bombay branch.
(b) Find all customers who have both a loan and an account at the bank.
(c) Find the average account balance at each branch.
(d) Find the number of depositors at each branch.

Q5.

(a) Describe the Join Operation. What does it accomplish? **(3)**
(b) Give relational schema for SUPPLIER-PART database where different suppliers supplying various parts at different rates and each part is supplied by a number of suppliers. Assuming that the following are meaningful, state the integrity constraints; additional assumptions may be made for the job at hand. **(4)**
(a) Retrieve names of the cities from which part P2 may be supplied.
(b) Retrieve supplier numbers of suppliers who are capable of supplying all parts.

(c) Reformulate the above queries in SQL. **(3)**

UNIT III

Q6.

(a) Draw and Explain the architecture of oracle. **(6)**
(b) Different between Logical Database Structure and Physical database structure. **(4)**

Q7.

(a) How is stored procedure created? Explain with example the three ways of passing Parameters with the stored procedure. **(6)**

(b) Explain error handling in PL/SQL. **(4)**

UNIT IV

Q8.

(a) Discuss different types of transaction failures. **(3)**
(b) What do you mean by cascading rollback? **(3)**
(c) Explain the two phase locking protocol. What are its advantages and disadvantages. **(4)**

Q9.

(a) Discuss the purpose of normalization & normalization process. Explain 1NF and 2NF. **(5)**
(b) Following relation for published books is given: **(5)**
BOOK(BOOK_TITILE, AUTH_NAME, BOOK_TYPE, LIST_PRICE,
AUTH_AFEL, PUBLISHER)
AUTH_AFEL refers to the affiliation of author. Suppose that the following FDs exists:
BOOK_TITLE->PUBLISHER, BOOK_TYPE
BOOK_TYPE->LIST_PRICE
AUTH_NAME->AUTH_AFEL

(I) What normal form is the relation in? Explain your answer.
(II) Apply normalization until the relations cannot be decomposed any further. State the reason behind each decomposition.