M.C.A. SEMESTER-I (CBCS 2018) : SUMMER - 2019
SUBJECT: DATABASE MANAGEMENT SYSTEMS

Day: Monday
Date: 22/04/2019

S-2019-2151

Time: 02.00 PM TO 05.00 PM
Max. Marks: 60

N.B.:
1) Q.4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All questions CARRY EQUAL marks.
5) Answers to Both the sections to be written in $SAME$ answer books.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)
   a) What are the different types of database users? Discuss the main activities of each.
   b) Explain CODD's Rules that qualify DBMS as a relational DBMS.

Q.2) Answer the following: (6 Marks X 2 = 12)
   a) Compare Hierarchical, Network and Relational data models in the terms of its merits and demerits.
   b) What are the main goals of the RAID technology?

Q.3) Explain the following: (6 Marks X 2 = 12)
   a) What is need of lock in DBMS? Explain shared lock and exclusive lock with the help of example.
   b) What is data quality management? Explain the process of ensuring and managing quality data.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)
   a) Database Schema v/s Database State
   b) Referential Integrity
   c) Candidate Key
   d) Static hashing vs. Dynamic hashing
   e) Stable storage structure
   f) Database authorization
   g) Distributed vs. Centralized database

SECTION - II

Q.5) Answer the following: (12 Marks X 1 = 12)
Construct an ER Diagram for a University Database and convert it into relational tables.
A University has many departments and each department has multiple instructors, one among them is head of the department. An instructor belongs to only one department, each department offers multiple courses, each of which is taught by a single instructor. A student may enroll for many courses offered by different departments.

Q.6) Answer the following: (6 Marks X 2 = 12)
   a) Explain all the operations on B+ tree by taking sample example.
   b) Why we need to do recovery in DBMS? Explain various method used for that.

Q.7) Explain the following: (6 Marks X 2 = 12)
   a) What are the elements to be considered in designing access control policies of a complex E-commerce application?
   b) What is the reason for constructing separate data warehouse to perform online analytical processing?

*****