Duration – 70 Mins.   **MM – 20**

Note: **All questions are compulsory. Make suitable assumptions, if necessary.**

#1   **How would you implement in MySQL/SQL:**
a.   Given a column in a table with numeric values. How would you find the second highest value of the given column?
b.   You want to have an auto increment feature on a column (attribute) of a table. How would you do that?
c.   How would you run a batch file (containing SQL commands) in MySQL?
d.   During a MySQL session, you want to know which database you are using, how would you know?
e.   How you can declare a secondary key in a table?

#2   What is controlled redundancy? What are the disadvantages of having redundancy in database?

#3   The following relations keep track of airline flight information:
Flights(flno: int , from: string , to: string , distance: int,departs: time , arrives: time , price: real)
Aircraft(aid: int , aname: string , cruisingrange: int)
Certified(eid: int , aid: int)
Employees(eid: int, ename: string , salary: int)
Write each of the following queries in SQL
a.   Compute the difference between the average salary of a pilot and the average salary of all employees (including pilots).
b.   Print the name and salary of every nonpilot whose salary is more than the average salary for pilots.
c.   Print the names of employees who are certified only on aircrafts with cruising range longer than 1000 miles.
d.   Find the names of pilots whose salary is less than the price of the cheapest route from *A* to *B*.
e.   Identify the routes that can be piloted by every pilot who makes more than Rs. 100,000.

#4   What is impedance mismatch and what is program-data independence? How DBMS achieves this?