**Ramakrishna Mission Residential College,Narendrapur**

**M.Sc. Semester-II Examination 2020**

**Subject: Computer Science**

**Paper-P7 (Advanced DBMS)**

**Full Marks: 40 Time: 2 hours**

***Answer any four questions***

1. a) What is multivalued dependency(MVD)? Explain with proper example.

b) Define 4NF.

c) Explain with an example how MVD is removed to achieve 4NF. 4+2+4

2. a) Write down the sort-merge external sorting algorithm .

b) Define join selectivity. 8+2

3. a) Explain the ACID properties of a transaction.

b) When do two statements in a transaction schedule conflict with each other? 6+4

4. a) What do mean by shared and exclusive locks? Show their compatibility.

b) Explain the basic 2 phase locking protocol. 4+6

5. a) Explain the ‘Dirty read’ and ‘lost update’ event in a transaction schedule.

b) Define and explain PJNF (project join normal form). 5+5

6. a) What do you mean by read timestamp and write time stamp of a data item in a schedule?

b) Hence write down the basic time stamp ordering protocol. 3+7

7. a)Test whether the functional dependency sets F = {A → C, AC → D, E → AD, E → H}

and G = {A → CD, E → AH} are equivalent or not.

b) Define serial and serializable schedule. 7+3