

**S.D.E.**  
**M.C.A. SEM -II : WINTER - 2017**  
**SUBJECT: DATA BASE MANAGEMENT THEORY**

Day: **Thursday**  
Date: **14/12/2017**

**W-2017-4419**

Time: **02.00 P.M. TO 05.00 P.M.**  
Max. Marks: 80

**N.B.:**

- 1) Attempt any **FIVE** questions from Section –I and any **TWO** questions from Section –II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

**SECTION-I**

- Q.1** Define Database Management System. Explain advantages of DBMS over file processing system. (10)
- Q.2** What is a data model? Explain relational database model in detail. (10)
- Q.3** Explain the need for concurrency control in detail. (10)
- Q.4** Mention the features of object oriented DBMS and give advantages of it. (10)
- Q.5** Explain the technique of log based recovery in detail. (10)
- Q.6** Explain the various security mechanism that can be used to protect a database against unauthorized access. (10)
- Q.7** Write short notes on any **TWO** of the following: (10)
- a) Cardinality Degrees
  - b) States of transaction
  - c) Index

**SECTION-II**

- Q.8** A bank has many branches. A customer can open his/ her account in any branch and can operate his/ her account from any branch. The information that it stores about the account includes account number, branch, name of the customer, account balance. Construct ER diagram for the same. Document all assumptions that you make about the mapping constraints. (15)
- Q.9** Given the following structure Normalize the data upto 3NF: (15)  
ProjectNumber, ProjectName, EmployeeName, JobClass, ChargesPerHour, HoursBilled, TotalCharges, DepartmentNo, DepartmentName.
- Q.10** Write short notes on: (15)
- a) Aggregate Functions
  - b) Data Manipulation Language
  - c) Views