

**M.C.A. SEM - I (CHOICE BASED CREDIT SYSTEM 2011 &
2012 COURSE) : WINTER - 2017
SUBJECT : DATABASE MANAGEMENT SYSTEMS**

Day : **Tuesday**
Date : **14/11/2017**

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 100

W-2017-1687

N.B.:

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

SECTION – I

- Q.1** List the major characteristics of database approach. Also mention some disadvantages of it. **[15]**
- Q.2** Define data model. Explain the different types of data models with relevant examples. **[15]**
- Q.3** Discuss the 3-tier architecture of DBMS. Explain how it helps to achieve data independence. **[15]**
- Q.4** What is a timestamp? How does the system generate timestamps? Discuss the timestamp ordering protocol for concurrency control. **[15]**
- Q.5** Why there is a need for recovery system? Explain log based recovery technique in detail. **[15]**
- Q.6** Write short notes on **ANY THREE** of the following: **[15]**
- a) ACID Properties of Transaction
 - b) Deadlock
 - c) Database Security
 - d) Hashing

SECTION – II

- Q.7** Consider the following requirements of a university database system: **[20]**
The university keep track of its students. It stores the student name, enrollment number, date of birth, phone number, gender and address. The university also keeps track of the programmes offered by it. The information that is to be kept about the programme is: programme code, programme name, fee, minimum eligibility and date of start of programme. The university has many departments. A programme is associated with only one department. Each department has a location address and name. A student can register only for one programme at a time. Draw an E-R diagram for the university. Also map the E-R diagram into relational model. Make suitable assumptions if any.
- Q.8** Normalize the following data upto 3NF: **[20]**
SalesOrderNo, Date, CustomerNo, CustomerName, CustomerAdd, SalesPersonNo, SalesPersonName, ItemNo, Description, Quantity, UnitPrice, Total, GrandTotal.
- Q.9** What is Relational Algebra? Explain the concept of joins. How are joins shown using Relational Algebra notations? Explain with example. **[20]**

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