Day: Saturday		Time: 02.00 PM TO 05.00 PM
Date: 04/05/2019	S-2019-5257	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 SAME answer book.

SECTION-I

Q.1 Define database and explain the three schema architecture with the help of a diagram. **(10)**

Q.2 What is an ER diagram? Discuss the conventions for displaying ER diagrams. **(10)**

Q.3 Explain CODD's rules that qualify a database as relational database. **(10)**

Q.4 What is concurrency control? Explain the concept of timestamps in relation to concurrency control. **(10)**

Q.5 Briefly explain why recovery is needed? **(10)**

Q.6 What is distributed database? Explain its advantages and disadvantages. **(10)**

Q.7 Write short notes on any **TWO** of the following: **(10)**

a) Role of Database Administrator
b) Checkpoints
c) Object oriented Database Management Systems

SECTION-II

Q.8 A university registrar's office maintains data about following entities:- **(15)**
i) Course, including number, title, credits, syllabus and prerequisites
ii) Student, including student_id, name and program
iii) Instructors, including identification number, name, department and title
iv) Course offering, including course number, year, semester, instructor (s), timings and classroom.
Draw an ER diagram for the Registrar's office. Document all assumptions that you make about the mapping constraints.

Q.9 Normalize following data upto 3NF. **(15)**
OrderNo, OrderDate, CustomerNumber, ItemNumber, ItemName, Quantity, UnitPrice, BillAmount.

Q.10 Write short notes on: **(15)**

a) Primary key and Foreign key
b) Subqueries
c) Views

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