SVKM's NMIMS
MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Programme: MCA Year: I Semester: I

Batch: **2017-18**

Academic Year: 2017-2018

Subject: Database Management Systems

Date: 02 June 2018

Marks: 70
Time: 10.00 am to 1.00 pm
Durations: 3 (Hrs)
No. of Pages: 02

Re-Examination

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

1) Question No. 1 is compulsory.
2) Out of remaining questions, attempt any 4 questions.
3) **In all 5 questions to be attempted.**
4) All questions carry equal marks.
5) **Answer to each new question to be started on a fresh page.**
6) **Figures in brackets on the right-hand side indicate full marks.**
7) **Assume suitable data if necessary.**

Q. 1 A. Explain role of various database users. [4]
B. Explain referential integrity with example. [4]
C. What is SET compatibility? [2]
D. List all functional dependencies satisfied by the relation. [2]

X	Y	Z
X1	Y1	Z1
X1	Y2	Z1
X2	Y2	Z1
X2	Y2	Z1

E. Explain various types attributes of an entity. [2]

Q. 2 A. Explain ECA model using concept of Trigger. Explain triggers syntax with example. [6]
B. A Nokia mobile shop sells online mobiles to customer. Construct an E-R diagram for the mobile shop and convert to tables. [8]

Q. 3 A. Explain all types of integrity constraints with examples. [6]
B. Consider a relational schema [8]
Customer(cname, ccity, phone)
Loan(lno, branch_name, amount)
Borrower(cname, lno)
Depositor(cname, accno)
Account(bname, accno, bal)
Write **SQL queries** for the following,
1. Find the name of customers whose name ends with the alphabet 'H'

2. Find the names of customers who has account with non-zero balance.
3. Find out the average account balance of SBI bank.
4. Find name of all customers having loan amount above 100000.

Q. 4 A. What are the advantages of DBMS over file processing system? [6]

B. Consider the following relations. [8]

Dealer (Dealer-no, DealerName, address)
Part (Part-no, Part-name, color)
Assigned-to (Dealer-no, Part-no, cost)
Use **Relational Algebra** to answer the following:

(i) Find the name of all dealers who supply 'Red' Parts.
(ii) Find the name of the dealers who supply both Yellow and Green parts.
(iii) Find the name of the dealers who supply all the Parts.
(iv) List all dealer names.

Q. 5 A. What is conflict serializability? Explain with conflict serializability using example. [6]
How to check schedule is conflict serializable using graph.

B. Consider following relations and write SQL queries for given statements. [8]

STUDENT (Ssn, Name, Subject, DOB)
COURCE (Course_id, Name, Dept)
ENROLL (Ssn, Course_id, Semester, Grade)
BOOK_ISSUED (Course_id, Semester, ISBN)
TEXT (ISBN, Title, Publisher, Author)

(1) Find all student details registered for course id 10
(2) Find various book titles and authors for semester higher than 3
(3) Find all students belongs to IT Department (without join)
(4) Find total number of student s enrolled in IT Department

Q. 6 A. What is transaction? Explain ACID properties. Draw a state diagram of transaction showing its states. [6]

B. Define Normal forms. Convert following Relation R (A, B, C, D) with following FDs to BCNF, AB $\rightarrow$ C, C $\rightarrow$ D, D $\rightarrow$ A [8]

Q. 7 **Write short notes on any two (Any two: Each Carry 7 Marks)** [14]

A. Timestamp Ordering Protocol
B. B+ tree
C. RAID for database

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