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SC-4302

M. C. A. (Sem. I) Examination

April / May – 2011

Paper - 102 : Database Management Systems

Time : **3** Hours] [Total Marks :**70**

Instruction :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **M. C. A. (Sem. 1)**

Name of the Subject :

☛ **Paper - 102 : Database Management Systems**

☛Subject Code No. : **4 3 0 2** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

1 Attempt any **two** : **14**

(a) Explain cardinality ratios with proper example.

(b) Explain multi-valued attribute, composite attribute and complex attribute with proper example. Also discuss how we can represent above attributes with E-R diagram.

(c) Explain various levels of data abstraction.

2 (a) Write short notes : (any **two**) **8**

(i) Domain and Atomic Domain

(ii) Super key and Candidate key

(iii) Referential integrity constraint

(b) Explain any union, set difference and Cartesian product operators of relation algebra giving proper example. **6**

3 Attempt any **two** : **14**

(a) Explain syntax of 'Credit Table' statement in SQL. Give proper example and explain how can you define various key constraints within create table statement.

(b) Explain basic structure of DBMS.

(c) Define function dependency. Give proper example to explain partial function dependency.

4 Attempt any **two** : **14**

(a) Explain lossless join decomposition and dependency preservation with proper example.

(b) Define normalization. Explain 3NF with proper example.

(c) Discuss insert, delete and update anomalies of un-normalized database.

5 Consider following tables : **14**

(Underlined attributes represent the primary keys)

Student (**RollNo**, Name, Address)

Book (**BookID**, publication, Edition, Price)

Book_Issue)**BookID, RollNo, IssueDate**)

(a) Draw E-R diagram corresponding to above tables. **3**

(b) Write SQL statements to create above tables (within MS-Access) **3**

(c) Write relational algebra expressions to solve following queries. **4**

(i) List the name of student who had not issued any book from the library.

(ii) Find all the book from the publication 'PHI'.

(d) Write SQL statements to solve followings (within Ms-Access) **4**

(i) Find student name who issued highest book from library.

(ii) Find students who do not issue any book within January 2011.