Krishna Kanta Handiqui State Open University

MSCIT/

MCA 4th Sem. Examination, 2016

Database Management System

(Theory)

Time : 2 Hrs. *Full Marks : 50*

1. Answer *any five* from the following questions : 2×5=10

   (a) Define view.

   (b) Define public key encryption.

   (c) What is ACID ?

   (d) Define concurrency control.

   (e) Give the syntax for creating a schema.

   (f) Define foreign key.

2. Answer *any two* from the following questions : 4×2=8

   (a) Name the primitive operators of relational algebra. Write the equivalent relational algebra query and the result for the following operation :

   Select only two attributes from the 'Students' table 'Name' and 'Age' and display only those where age is above 21.

Students		
Name	Age	Course-no.
ABC	25	101
XYZ	18	205
JKL	23	101

   (b) Define database security and attribute security. Mention any two database security requirements.

P.T.O

(c) Define functional dependency. What are the three types of functional dependency ?

3. Answer *any two* from the following questions : 6×2=12

(a) Describe the three different cardinality relationships.

(b) Describe briefly —

(i) Two phase locking technique

(ii) Conservative / pessimistic consurrency control protocols.

(iii) Aggressive / optimistic concurrency control protocols.

(c) Explain transaction states with the help of state transition diagram

4. Answer *any two* from the following questions : 10×2=20

(a) Consider the following relations : 5+3+2

Student (rollno, stname, adr., phno)
Lib-Books (bookid, bookname, author, price)
Reads (rollno, bookid, date issue, date return)

Write SQL statements for the following :

(i) Create the tables. Identify the keys and foreign keys.

(ii) Display the number of times a book has been read.

(iii) Display the name of books which have price less than Rs. 500.

(b) Define normalization. Define 1NF, 2NF and 3NF. Show the transformation of a table that is not in any normalized form to 1NF, 2NF and 3NF.

(c) (i) Differentiate between —

(I) simple and composite attributes

(II) stored and derived attributes

(ii) Define null attributes.

(iii) Represent an entity 'Student' using E – R Model.

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