University of Dhaka

Department of Computer Science and Engineering

2nd Year 2nd Semester 2016

1st In-course Examination

Course Code: CSE-2201, Database System

Time: 1 Hour 30 Minutes **Full Marks: 30**

1. Who is DBA? What are the jobs of a DBA? 4

2. a) Fill up the blank: Library – books, Bucket – water, Firebox – fire sticks, _____ - _____. 1

   b) Give an example of a schema that has one primary key and two unique keys. 1

   c) What will be the logical value in the result column? 1

Logical Value	Boolean Operator	Logical Value	Result
true	**and**	*unknown*	
false	**and**	*unknown*	
true	**or**	*unknown*	
false	**or**	*unknown*	

   d) Consider a relation *r(A, B, C)*. If BC can minimally identify a tuple the relation, how many super key/s are there? 1
   i) 1 ii) 2 iii) 3 iv) more

   e) If we design a table to establish relationship Primary Key = Candidate Key = Super Key, the table may have ____ no. of attribute/s. 1
   i) 1 ii) 2 iii) 3 iv) any

   f) Rewrite the **where** clause "**where unique** (**select** *title* **from** *course*)" without using the **unique** construct. 1

3. Consider the following arbitrary relation below and find the super keys, Candidate keys and Primary key. 4

A	B	C	D
a1	b1	c1	d1
a2	b1	c2	d2
a2	b2	c2	d2
a3	b3	c2	d4

4. Consider the following database below. Underlined attributes are the **primary keys** for the respective relations.

   book (book_id, title, types, pub_name)
   authors (book_id, author_name)
   publisher (pub_name, address, est_year)
   copies(book_id, branch_name, no_of_copies)

   Write query statements using **SQL** and **RA** for the following queries **(any five)**: 10
   i) Find the names of the publishers which is located at Bombay or established after 1980.
   ii) Find the total, max and average no. of books in each branch.
   iii) Find the names of the publisher which have published books with music type.

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i) 1 ii) 2 iii) 3 iv) any

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book (book_id, title, types, pub_name)
authors (book_id, author_name)
publisher (pub_name, address, est_year)
copies(book_id, branch_name, no_of_copies)

Write query statements using **SQL** and **RA** for the following queries (**any five**): 10

i) Find the names of the publishers which is located at Bombay or established after 1980.
ii) Find the total, max and average no. of books in each branch.
iii) Find the names of the publisher which have published books with music type.
iv) Find the number of authors along with book name for each book.
v) Change the types of book from 'Science' to 'Comp. Science'.
vi) Delete book information which has less than 40 copied in total in different branches.

5. Draw the schema diagram for the database mentioned considering appropriate primary and foreign keys. 3

book(ISBN, title, year, price)
author (author_id, name, address, url)
warehouse (code, address, phone)
written_by (author_id , ISBN)
stocks (code, ISBN, number)

6. Suppose that we have a relation *marks*(ID, *score*) and we wish to assign grades to students based on the score as follows: grade *F* if *score* < 40, grade *C* if 40 ≤ *score* < 60, grade *B* if 60 ≤ *score* < 80, and grade *A* if 80 ≤ *score*. Write SQL queries to do the following: 3

a) Display the grade for each student, based on the *marks* relation.
b) Find the number of students with each grade.

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