SET - B

National Institute of Technology Calicut
Department of Computer Science and Engineering
CS3095D DBMS Lab

Time: 30 minutes **Test II** **Marks: 06**

Answer all Questions

Upload the answer script as pdf file in Eduserver

Submission- I, Normalization

Consider the following database design for a bookstore website. For each book, the relation contains its ISBN number, title, author, price, and the year the book was published. Most of the customers are regulars, and their names and addresses are recorded. Order details of a book are stored along with credit card details, order and shipping dates. The relational schema is given below.

Books (isbn: CHAR(10), title: CHAR(8), author: CHAR(80), qty_in_stock: INTEGER, price: REAL, year_published: INTEGER)
Customers (cid: INTEGER, cname: CHAR(80), address: CHAR(200))
Orders (ordernum: INTEGER, isbn: CHAR(lO), cid: INTEGER, cardnum: CHAR(l6), qty: INTEGER, order_date: DATE, ship_date: DATE)

Answer all questions

1. Maximum number of super keys for the relational schema *Customers* with cid as a key is ___ (1 Mark)

2. Is the relation *Books* in BCNF? (1 Mark)

3. Consider the relation *Orders* with following functional dependencies. $ordernum \rightarrow cid$, $ordernum \rightarrow order\_date$, $ordernum \rightarrow cardnum$. Is the relation in 3NF? Why? (1 Mark)

4. Consider the decomposition of the relation *Orders* into *Order_details* and *Order_lists.*
   Order_details (ordernum, cid, order_date, cardnum)
   Order_lists (ordernum, isbn, qty,ship_date). Identify the highest the normal form for both relations. (1 Mark)
   a. *Order_details* is in BCNF and *Order_lists* is in 3NF
   b. *Order_details* is in 3NF and *Order_lists* is in 2NF
   c. *Order_details* is in BCNF and *Order_lists* is in BCNF
   d. *Order_details* is in 3NF and *Order_lists* is in BCNF

5. The decompositions given in question 4 are (2 Marks)
   a. Dependency preserving and lossless join
   b. Dependency preserving but not lossless join
   c. Lossless join but not dependency preserving
   d. Not dependency preserving and lossless join

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