

**Indian Institute of Technology Kharagpur**  
**Department of Computer Science and Engineering**  
**CS30202 : Database Management Systems (DBMS)**  
**Date: 31-01-2023   Class Test - 1 Marks: 20   Time: 45 mins**

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1. Construct an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars and has one or more premium payments associated with it. Each payment is for a particular period of time, and has an associated due date, and the date when the payment was received.  
**(8 Marks)**

2. Consider the employee database shown below. Give an expression in the relational algebra to express each of the following queries: **(4 Marks)**

- (i) Find the ID and name of each employee who works for "BigBank".
- (ii) Find the ID and name of each employee in this database who lives in the same city as the company for which she or he works.

**Employee Database**

*employee (id, name, street, city)*  
*works (id, company name, salary)*  
*company (company name, city)*

3. Consider the library database shown below. Write the following queries in SQL . **(8 Marks)**

- (i) Find the member number and name of each member who has borrowed at least one book published by "McGraw-Hill".
- (ii) For each publisher, find the member number and name of each member who has borrowed more than five books.

**Library Database**

*member(memb\_no, name)*  
*book(isbn, title, authors, publisher)*  
*borrowed(memb\_no, isbn, date)*