JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION- Sep 2017
B.Tech III Semester

COURSE CODE: 10B11CI312   MAX. MARKS:15
COURSE NAME: Database Systems
COURSE CREDITS: 4   MAX. TIME: One Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. [5 marks] Design an E/R diagram describing the following domain:
° A Person has attributes pid (key) and name.
° A Skier is a type of Person with attribute aptitude.
° A Snowboarder is a type of Skier.
° A PairofSkis has attribute sid (key) and model.
° A Snowboard has attribute sid (key) and model.
° A Skier owns zero or more PairofSkis. The ownership relation has a purchase price. A PairofSkis is owned by at most one Skier.
° A Snowboarder owns zero or more Snowboards. The ownership relation has a purchase price. A Snowboard is owned by at most one Snowboarder.
° A Person can rent a PairofSkis or a Snowboard. A person cannot rent more than one PairofSkis or one Snowboard at the same time. A person cannot rent a PairofSkis and a Snowboard at the same time either. A piece of equipment can be rented by at most one person at a time. The rental comes with a start date and an end date.

Q2. [5 Marks] Consider the following relational Schema and give the answers of following in Relational Algebra, and Tupple Relational Calculus:
Employee(E_name, Street, City)
Works_For(E_name, Company_Name, Salary)
(a) Name of employees who are not working.
(b) Find city and name of employee who are working.
(c) Name of employees who are working.
(d) Find city and name of employees who are not working.
(e) Name of employees who are not working for Wipro.

Q3. [2.5+2.5 Marks] (a) Transform the following ER Diagram into Relational Model
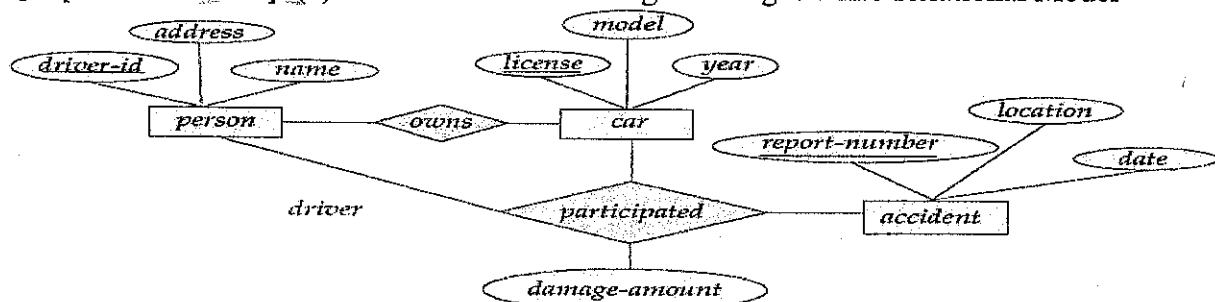
E-R diagram for a Car-insurance company.

(b) Ensuring data integrity is an important issue in database; describe the various integrity constraints in database to ensure integrity? How the keys of relationship set are formed explain with example.

CT-8 BT