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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2018

B.Tech. (CSE, IT, BI) III Semester

COURSE CODE: 10B11CI312

MAX. MARKS: 15

COURSE NAME: Database Systems

COURSE CREDITS: 3

MAX. TIME: 1 Hr.

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

- Q1. CO-1 i) Explain any two disadvantages of conventional file-based system compared to Database management system. [2]
ii) Differentiate between logical and physical data independence. [2]
- Q2. CO-1 i) Explain any two relational integrity constraints with the help of example. [2]
ii) Differentiate between key and superkey with the help of an example. [2]
- Q3. CO-2 Design and explain an E-R diagram for a Banking System with at least four entity types and 3 relationship types. Clearly indicate the relationships, cardinality and the key constraints. Specify the appropriate assumptions you are making for the system. [4]
- Q4. CO-3 Consider the following relational database schema for a Company: [3]
Department(Dname, Dnumber, Supervisor-no, Supervisor-startdate, Dlocation)
Project(Pname, Pnumber, Plocation, Dnum)
Employee(Name, ENO, DOB, Address, Sex, Salary, DNo)
WorkHours(EENO, PNo, Hours)

Write the relational algebra expressions for the following queries.

- i) Retrieve the name of projects which are associated with department number 5 and located in either Delhi or Bombay.
- ii) Retrieve the employment number and date of birth of all male employees having salary greater than 40,000 and working in any department.
- iii) Retrieve the employment number of all employees who either work in department number 7 or supervise directly the employees working in department number 7.