JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-III Semester (CSE/IT)

COURSE CODE (CREDITS):18B11CI313 (3) MAX. MARKS: 25

COURSE NAME: DATABASE MANAGEMENT SYSTEMS

COURSE INSTRUCTORS:**Dr.{ Pardeep, Ekta, Nishant & Pankaj}** MAX. TIME: 1 Hour 30 Minutes

Note: *(a) All questions are compulsory.*
(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	Consider the following schemas: branch (branch-name, branch-city, assets), customer (customer-name, customer-street, customer-city), account (account-number, branch-name, balance), loan (loan number, branch-name, amount), deposit (customer-name, account-number), borrower (customer-name, loan-number) (a) Write the following queries in tuple relational calculus (i) Find the loan number for each loan of an amount greater than $1200. (ii) Find the names of all customers having a loan at the Solan branch. (iii) Find the names of all customers having a loan, an account or both at the bank. (b) Write the following queries in domain relational calculus (i) Find the loan number, branch name and an amount for loans of over $1200. (ii) Find the loan number for each loan of an amount greater than $1200. (iii) Find the names of all customers who have a loan of over $1200.	CO-2	[6]
Q2	Find out the number of candidate keys in relation R(A,B,C,D,E,F) with functional dependency set F: { AB→C, C→DE, E→F, D→A, C→B}	CO-3	[5]
Q3	Find the minimal cover for the given functional dependency set F: { AB→C, C→AB, B→C, ABC→AC, A→C, AC→B}	CO-4	[5]
Q4	Consider the relation R(A,B,C,D) and functional dependency set F: {A→B, B→C, C→D}. Determine the highest normal form of the given relation R. Covert your identified normal form into immediate next higher normal form for relation R. Also identify the highest normal form of your decomposed sub relations.	CO-4	[9]