Reg.No.										

MANIPAL UNIVERSITY JAIPUR

Faculty of Engineering

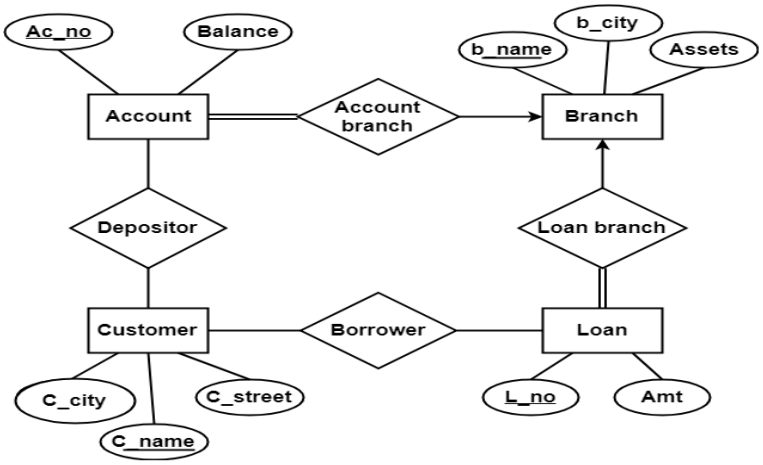
School of Computing & IT
Computer Science & Engineering
IV SEM. BTech
Even Semester MTE -1 Examination 2021-22
CS2202 – RELATIONAL DATABASE MANAGEMENT SYSTEMS
SOLUTION SCHEME

Time: 01 Hour **MAX.MARKS: 20**

Instructions to Candidates

- Answer all five questions in your own words.
- Missing data, if any, may be assumed suitably.

Q. No.	Question Script	Marks	CO Mapping
1 Sol:	Describe the advantages of database management system over traditional file system ▪ ***Data redundancy and inconsistency*** ▪ ***Data sharing*** ▪ ***Data concurrency*** ▪ ***Data searching*** ▪ ***Data integrity*** ▪ ***System crashing*** ▪ ***Data security*** ▪ ***Transaction Management*** ▪ ***User Access***	4	CO1
2 Sol:	Create an ER-Diagram which models the various Departments, Courses, Students, Employees of *School of Computing & IT*. The focus shall be given on the following parameters. i. Entities, Attributes, Relationship ii. Integrity Constraints iii. Participant Constraints iv. Mapping Cardinality ***Students can articulate the conceptual model based on their understanding of the requirements.*** ***Award 2 marks for clearly specifying attest four entities, with appropriate attributes and relationship*** ***Award 1 marks for specifying integrity constraints*** ***Award 1 marks for specifying Participant Constraints*** ***Award 1 marks for specifying Mapping Cardinality***	5	CO2

3	Consider the following ER-Diagram of a Bank Database.  a. Determine the minimum number of tables required for converting the above ER-Diagram to Relational Schema. ***Answer = 6*** b. Write the schema of possible tables with attributes. Account (Ac_no, Balance, b_name) Branch (b_name, b_city, Assets) Customer (C_city, C_name, C_street) Loan (L_no, Amt, b_name) Depositor (Ac_no, C_name) Borrower (C_name, L_no) c. Determine primary key constraints of each relation. i. Account → (Ac_no, b_name) ii. Branch → b_name iii. Customer → C_name iv. Loan → (L_no, b_name) v. Depositor → (Ac_no, C_name) vi. Borrower → (C_name, L_no)	2+2+1	C02
4 Sol:	Consider the following relation schema pertaining to an employee database Employee (EID, FirstName, City) Project (EID, Project#, Project Name) The number of tuples in Employee and Project are 40 and 200 respectively. a. Compute the maximum and minimum number of tuples for each of the following JOIN operations and justify your answer. i. R1 ⋈ R2 (⋈ denotes Natural Join) *ii. R1 * R2 (* denotes Cross Join)*	4+2	CO3

Give two marks only for the correct answer & proper justification

	MAX	MIN
R1 ⋈ R2	200	200
R1 * R2	8000	8000

b. Write the equivalent SQL syntax for the above relational algebra queries.

GIVE ONE MARKS FOR EACH CORRECT SQL QUERY

(i) SELECT *
FROM EMPLOYEE, PROJECT
WHERE EMPLOYEE.EID = PROJECT.EID

SELECT *
FROM EMPLOYEE
NATURAL JOIN PROJECT

(ii)SELECT *
FROM EMPLOYEE, PROJECT