REG.NO.: 24MIC0128

SLOT: B2

VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

Programme Name & Branch	: M. Tech Integrated (MIC and MID)
Course Code and Course Name	: CSI1001 - Principles of Database Systems
Faculty Name(s)	: DIVIYA M, HARINI N, SUDHAKAR P, NAGESHWAR RAO RAGI
Class Number(s)	: 1635, 1641, 1638
Date of Examination	: 18/08/2025
Exam Duration	: 90 minutes **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes:
  1. Acquire a good understanding of the architecture and functioning of database management systems
  2. Ability to construct an ER model, derive the relational schemas from the model

Q. No	Question	M	CO	BL
1.	(a) Discuss briefly about applicability of the database in the following software Stock Exchange Banking Universities Airlines Social media	5	1	2
	(b) Discuss briefly Database Languages and their Role.	5		
2.	a) Illustrate the components and their interaction within a typical database system environment.	7	1	2
	b) Explain the significance of system utilities and tools in managing and supporting database systems.	3		
3.	The following relational schema represents a University database that stores information about students, departments, courses, and enrollment. Student (SID, SName, DeptID) Department (DeptID, DeptName, Location) Course (CID, CName, DeptID) Enrolled (SID, CID, Grade) Write appropriate Relational Algebra expressions for the following queries based on the given University database schema. a) List the names of students who are enrolled in any course. b) Retrieve the names of departments located in the 'Main Building'.	10	1	3

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	c) Find the names of students who are not enrolled in any course. d) List the names of students who are enrolled in courses offered by the 'Computer Science' department.			
4.	A university registrar's office maintains data about the following entities: (a) courses, including number, title, credits, syllabus, and prerequisites; (b) courseofferings, including course number, year, semester, section number, instructor(s), timings, and classroom; (c) students, including student-id, name, and program; and (d) instructors, including identification number, name, department, and title. Additionally, the registrar processes students' enrollment in courses and their grades. Draw the ER diagram based on the given scenario. Identify and list the entities, their attributes, and the relationships between them.	10	2	3
5.	a) Define the term "Relationship" in the context of the ER model. Explain structural constraints associated with relationships.	4	2	3
	b) Based on the given ER diagram (Fig.1), derive the corresponding relational schema(s).	6		

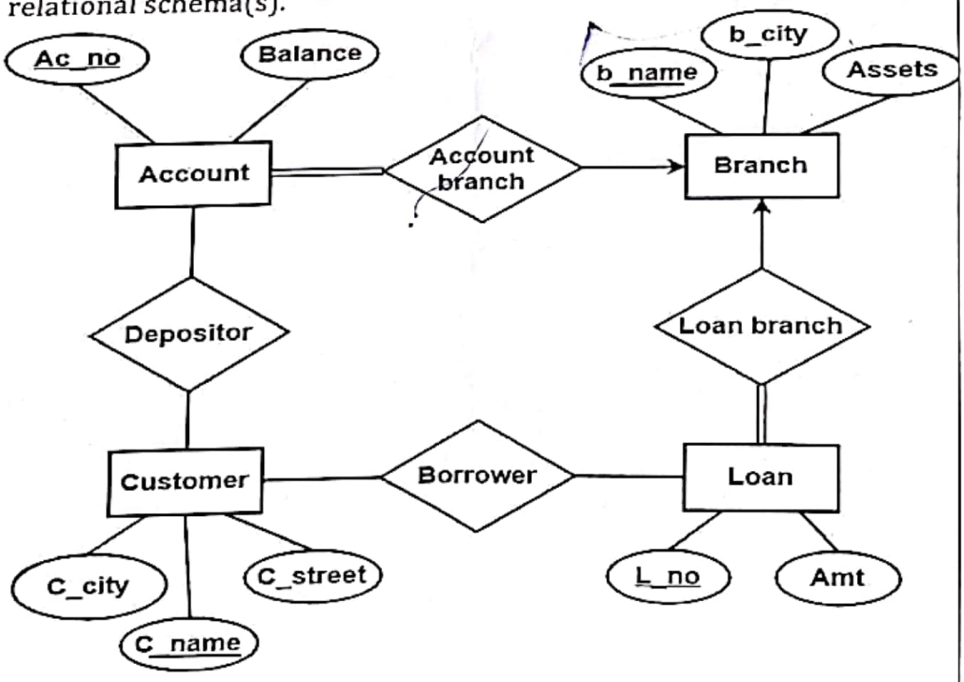

Fig. 1

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