

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: B.TECH.
BRANCH: ARTIFICIAL INTELLIGENCE

SEMESTER : V
SESSION : MO/2025

SUBJECT: CS237 DATABASE MANAGEMENT SYSTEM

TIME: 02 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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		CO	BL
Q.1(a)	Explain the difference between logical and physical data independence.	[2]	2
Q.1(b)	Explain overall data base Architecture with a neat diagram.	[3]	2
Q.2(a)	What is a Weak Entity set? Give an example.	[2]	1
Q.2(b)	Draw the ER diagram for a Banking Enterprise.	[3]	2
Q.3(a)	List to reasons why null values might be introduced into the database	[2]	1
Q.3(b)	Consider the given database below, give expressions in SQL for the following queries. Lives (person name, street, city) Works (person_name, company_name, salary) Located on (company_name, city) Manager (person_name, manager_name) a) find names of all People who work for B.I.T. b) Find the city of all people who work for B.I.T. c) Find the name, city of all people who work for B.I.T and earn more than Rs3000 d) Find people who live in the same city as their company they work for. e) Find names of all people live in the same city & on the same street as their manager. f) Find all people who do not work for B.I.T	[3]	3
Q.4(a)	What is Tuple Relational Calculus? Give an example.	[2]	2
Q.4(b)	Give 2 examples each for SELECT (σ) and PROJECT (π) operation of Relational Algebra.	[3]	2
Q.5(a)	What is functional dependency? Explain 2 nd Normal Form.	[2]	2
Q.5(b)	What is Normalization? Why do we need it?	[3]	2

:::::23/09/2025 :::::M