

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2025)

CLASS: IMSc
BRANCH: MATH

SEMESTER : VI
SESSION : SP/2025

SUBJECT: CS325 DATABASE MODELLING

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)	What is recursive relationship in E- R modeling? Show with an example diagram highlighting the mapping cardinality in it.	[2] 1	3
Q.1(b)	Draw a layered diagram showing the Database Lifecycle.	[3] 1	2
Q.2(a)	Explain types of Participation constraints in E-R diagram. Also explain that why it is useful to indicate them in the diagram.	[2] 1	2
Q.2(b)	What is Tuple Relational Calculus? Show an example TRC expression for an example query.	[3] 1	2
Q.3(a)	What do you mean by Specialization and Generalization in conceptual modeling? Explain with examples.	[2] 2	2
Q.3(b)	Explain the following Relational Algebraic operations taking the example queries: i) FULL OUTER JOIN ii) THETA JOIN	[3] 1	3
Q.4(a)	Explain Redundant Relationships with example. Also explain the way to handle them.	[2] 2	3
Q.4(b)	How is View integration performed in E-R modeling? Explain the steps with example.	[3] 2	2
Q.5(a)	Discuss the mapping for E-R diagram to relational Tables.	[2] 2	3
Q.5(b)	Explain with examples the following types of grouping done while performing the Entity Clustering: i) Dominance ii) Constraint	[3] 2	3

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