

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

Programme Name & Branch : B. Tech & Computer Science and Engineering
 Course Code and Course Name : BCSE302L and Database Systems
 Faculty Name(s) : Sampath Alankritha
 Class Number(s) : VL2025260502098
 Date of Examination : 29-Jan-2026
 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
 CO1 - Comprehend the role of database management system in an organization and design the structure and operation of the relational data model.
 CO2 - Develop a database project depending on the business requirements, considering various design issues.

Q. No	Question	Module	Marks	CO	BL
1.	A college currently maintains Student records using separate files for admissions, examinations, library and hostel management. Due to this approach, the institution is facing issues such as data redundancy, inconsistency, and difficulty in accessing information. a) Identify the problems associated with the traditional file processing system in this scenario. b) Explain how adopting a DBMS approach can overcome these problems c) Mention the role of the Database Administrator (DBA) in managing such a database system.	1	10	1	2
2.	Describe the Three-Schema Architecture of DBMS with a neat diagram. Explains its significances in data independence.	1	10	1	2
3.	Explain Integrity Constraints in Relational Model. How are Null Values Handled in Relational Databases?	2	10	2	2
4.	Given the following ER diagram representing STUDENT, COURSE, and ENROLLEMNT entities, explain how the ER model is mapped into a relational Schema. Clearly indicate the primary key and foreign keys.	2	10	2	3



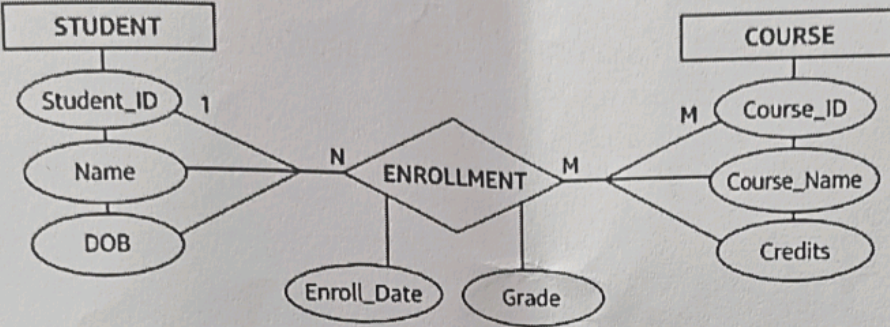
VIT[®]

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

REG.NO.:

SLOT: C2+TC2

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5.	<p>Consider the given relation with functional dependencies: $R(A, B, C, D, E, F)$ $FD: \{A \rightarrow B, B \rightarrow C, C \rightarrow D, D \rightarrow E\}$</p> <p>a) Identify the candidate key(s) for the relation R. b) Check whether the relation R is in Second Normal Form (2NF). c) Normalize the relation R into Third Normal Form (3NF)</p>	3	10	3	5
