



VIT

Vellore Institute of Technology
(Chartered to be University under section 3 of U.G.A. Act, 1956)

REG.NO.:

SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS

CONTINUOUS ASSESSMENT TEST - I

WINTER SEMESTER 2025-2026

SLOT: A1+TA1

Programme Name & Branch : B. Tech IT
Course Code and Course Name : BITE302L- Database Systems
Faculty Name(s) : Prof. Bimal Kumar Ray, Prof. Tapan Kumar Das,
 Prof. Jayaram Reddy A, Prof. Karthikeyan J
Class Number(s) : VL2025260502761, 2763, 2766, 2768
Date of Examination : 27.01.2026
Exam Duration : 90 minutes **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes
 CO1- Identify the basic concepts of databases and various data models used in DB design
 CO2-Design conceptual models to represent simple database application scenarios
 CO4- Populate and query a database using SQL and PL/SQL

Q. No	Question	M	CO	BL
1.	a) Categorize the database end users. Mention their level of awareness about DBMS and their responsibilities with an example of each. b) What is data abstraction? Explain data independence by a suitable example. What do you understand by multiple views of data?	5 5	1	2
2.	Explain the components of a DBMS architecture in detail. Further explain how database system architecture improves security and performance.	10	1	2
3.	The Motor Vehicle branch administers driving tests and issues driving licenses. Any person who wants a driver's license must first take a learner's exam at any Motor Vehicle branch in the province. If he/she fails the exam, he can take the exam again any time after a week of the failed exam date, at any branch. If he passes the exam, he is issued a license (type = learner's) with a unique license number. The person may take his driver's exam at any branch any time before the learner's license expiry date (which is usually set at six months after the license issue date). If he passes the exam, the branch issues him a driver's license. A driver's license must also record if the driver has completed driver's education, for insurance purposes. Draw an ER diagram that captures the above information. Indicate necessary constraints on the diagram. Assume the necessary attributes such as name, address, sex, birth date, blood group for the person.	10	2	3
4.	Differentiate between ER and EER models. Design a generalization-specialization hierarchy for an ACCOUNT type in bank. There are savings	10	2	4



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	account and current account. Justify your placement of attributes at each level of the hierarchy and provide the structural constraints required for the entities. Explain why they should not be placed at a higher or lower level. Represent EER constraints in the diagram.			
5.	Based on the following relational database, you are required to formulate the suitable SQL Query for the following questions. Book (<u>Acc No</u>, Title, Publisher, Shelf) Member (<u>Id</u>, Name, School, Type) Issue_Record (<u>Acc No</u>, <u>Id</u>, Issue_Date, Due_Date) Write the SQL syntax for the following queries. (4+2+2+2) - Create the Book, Member and Issue_Record tables with appropriate primary key and foreign key. - Add a constraint to already created Book table such that Shelf numbers must be between 1 and 20. - Display all the book Titles in alphabetical order of Addison-Wesley publisher. - Print the member id and Acc_No who are having long pending books (i.e. more than one year.)	10	4	3
