



SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT: B2+TB2

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. Tamil Priya D
Class Number(s) : VL2024250502774, 2780, 2795
Date of Examination : 28.01.2025
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) Why would you choose a database system instead of simply storing data in operating system files? When would it make sense not to use a database system?	5	1	2
	b) Explain the difference between two-tier and three-tier architectures. Which is better suited for Web applications? Why?	5		
2.	Explain the difference between external, internal, and conceptual schemas. How are these different schema layers related to the concepts of logical and physical data independence? Describe these concepts by taking the different operations in student database.	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



VIT

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

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4.	a) Design a generalization–specialization hierarchy for an ACCOUNT type in bank. There are savings 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 and indicate the necessary constraints on the diagram.	5	2	4
	b) What enhanced features are present in EER model as compared to ER model? Explain with examples.	5		
5.	Based on the following relational database, you are required to formulate the suitable SQL Query for the following questions. EMPLOYEE (Emp_Id, Emp_Name, Salary, DOJ, Email, Company_Name) COMPANY (Company_Name, City, Phone, State, Country) a) Create the Employee table with appropriate primary key. b) List the details of the employees who have been earning salary less than 50000 and have not given their email-id. c) List the companies in ascending order which are in state 'Telangana'. d) Display the names of the employee whose starting letter is 'H'. e) Find the employees who have joined after 2019 and their state is 'Karnataka'.	10	4	3
