

School of Information Technology and Engineering

Winter Semester 2022-2023

Continuous Assessment Test – I

Programme Name & Branch B.Tech IT Course Name & code: Database Systems & BITE302L

Slot: C2

Exam Duration: 90 Min

Maximum Marks: 50

ClsNbrs: VL2022230501558, VL2022230501556, VL2022230501554, VL2022230501560

Faculty Name (s): Dr. Ranichandra C, Dr. Jayaram Reddy, Dr. Tapan Kumar Das, Dr. Senthil Kumar N

ANSWER ALL THE QUESTIONS (5 X 10 = 50)

1. List for each of the database users which of the three schemas or levels they would interact within a database. There may be more than one level used by a user. Explain the role of each database users with appropriate examples. 10
2. Relational databases are very effective in situations for which they are appropriate. In other situations, simpler file-based solutions may be sufficient. Suppose you are required to implement a system for storing information about a library's books, borrowers, and loans. Give FOUR reasons why a database system is superior to a file-based system for this task. Illustrate the answer with suitable examples. 10
3. Manufacturers have a name, which we may assume is unique, an address, and a phone number. Products have a model number and a type (e.g., television set). Each product is made by one manufacturer, and different manufacturers may have different products with the same model number. However, you may assume that no manufacturer would have two products with the same model number. Customers are identified by their unique social security number. They have email addresses, and physical addresses. Several customers may live at the same (physical) address, but we assume that no two customers have the same email address. An order has a unique order number, and a date. An order is placed by one customer. For each order, there are one or more products ordered, and there is a quantity for each product on the order. Draw an E/R diagram that represents the above information. Indicate key constraints, cardinality constraints and participation constraints on the diagram. 10

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 also give the structural constraints required for the entities. Explain why they should not be placed at a higher or lower level. Represent EER constraint's in the diagram and indicate the necessary constraints on the diagram.

10

Based on the following relational database, you are required to give the suitable SQL Query for the following questions.

10

EMPLOYEE(Emp_id, Emp_name, salary, doj, Email, Office_code)
OFFICE(Office_code, City, Phone, State, Country)

- Create the employee table with appropriate primary key.
- List the details of the employees who have been earning the salary less than 5000 and have not given their email-id.
- Find the office which is located in state 'Kerala'.
- Display the names of the employee whose starting letter is 'H'.
- Find the employees who have joined after 2019 and their state is 'Karnataka'.