



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: C1

Exam Duration: 90 Min

Maximum Marks: 50

ClsNbrs: VL2022230501557, VL2022230501559, VL2022230501555, VL2022230501553

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. In the DBMS architecture, there are different types of Database Users performing different sets of operation on the given database. Given the several interfaces that a potential user may use when actively interacting with a database, discuss the role of each user and the possible options they have when interacting with that interface. You must project the features as well as the limitations that the user is possessed during the time of execution. Substantiate your answer with necessary arguments and discuss the core points that encompass the database users starting with technical developers & administrators to non-technical end-users. 10
2. Consider a Chat-Bot application which response to the queries raised by the user. The Chabot retrieves the relevant answer from the database where it stored the entire frequently asked question and answer by matching the question asked by the user and question stored in the databases. Narrate the explanation relevant to levels of data abstraction for this use case. Draw the neat diagram for the above scenario and delineates the roles of each levels in the data abstraction. 10
3. The Motor Vehicle Branch administers driving tests and issues driver's 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. A learner's license may contain a single restriction on it. The person may take his driver's exam at any branch any time before the learner's license expiry 10

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.

4. Design a generalization-specialization hierarchy for the student. Students are categorized as postgraduate and undergraduate relationship. A student in the university has a registration number and a name. Only postgraduate students have supervisors. Undergraduates accumulate points through their coursework. 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.

5. Consider the following relational schema:

Product (pid, name, price, manufacturer)

Customer (cid, cname, age, city, mobilenumber)

Write a SQL query for the following: (2X5=10 Marks)

- Create the product table with appropriate primary key.
- Display the details of the customers who have not given the mobile number and age of the customer is above 20.
- Find the customers who have come from the city 'Mumbai'.
- Display the details of the products manufactured by 'TATA'.
- Display the product names with the price less than 500 rupees.