SRM Institute of Science and Technology
College of Engineering and Technology

Batch 2- Set D

School of Computing

Academic Year: 2022-23 (EVEN)

Answer Key

Test: CLA-T1 | **Date: 15-02-2023**
Course Code &Title: 18CSC303J Database Management Systems | **Duration:**50 minutes
Year & Sem: III Year / VISem | **Max. Marks:**25
Instruction: MCQs to be collected within first 10 minutes

Course Articulation Matrix:

S.No.	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	CO1	H	M	L									

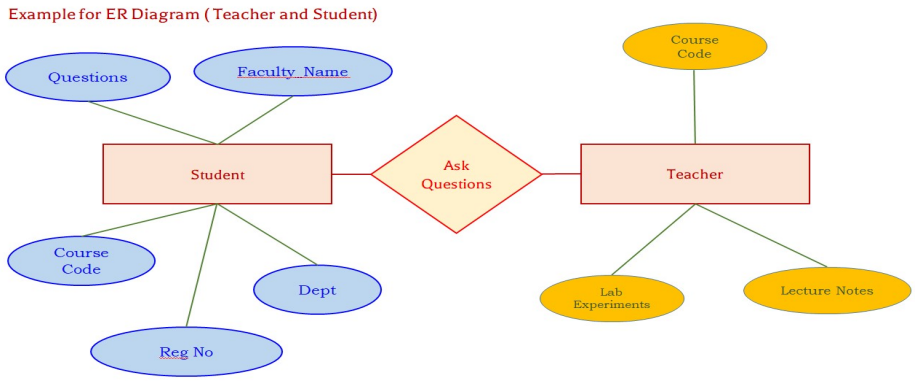
Part – A MCQ
(5 x 1 =5 Marks)

Instructions: Answer all

Q. No	Question	Marks	BL	CO	PO	PI Code
1	1. The DBMS acts as an interface between _____ and _____ of an enterprise-class system. a) Data and the DBMS b) Application and SQL **c) Database application and the database** d) The user and the software	1	2	1	1	1.6.1
2	Find a method that is advantageous for database management. a) Data being dependent on the programs b) Data redundancy increases **c) Data is integrated and can be accessed by multiple programs** d) Duplication of data	1	2	1	1	1.6.1
3	Consider a three-schema DBMS system where each user group exclusively references to its own external schema. A request specified on an external schema is converted by DBMS into a request against the conceptual schema. These modifications are made by: a) Integration b) Transformation **c) Mapping** d) ER Model	1	1	1	1	1.6.1
4	The values appearing in given attributes of any tuple in the referencing relation must likewise occur in specified attributes of at least one tuple in the referenced relation, according to _____ integrity constraint. **a) Referential** b) Primary c) Referencing d) Specific	1	1	1	1	1.6.1
5	Which type of data model provides a high-level view of the data and its relationships, and is used to define the overall structure of the data? **A. Conceptual Data Model** B. Logical Data Model C. Physical Data Model D. Relational Data Model	1	1	1	1	1.6.1

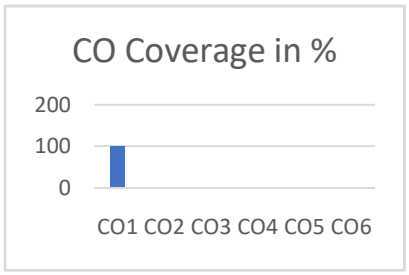
Part – B
(2 x4= 8Marks)

Instructions: Answer any 2

6	A small business owner have to keep track of his customers, orders, and inventory. He considers using a database management system (DBMS) to manage the data. Explain why using a DBMS would be beneficial for his business in terms of data organization and efficiency. **Answer:** • Improved data sharing and data security • Effective data integration • Consistent, reliable data • Data that complies with privacy regulations • Increased productivity • Better decision-making	**4**	**3**	**1**	**1**	**1.6.1**
7	You are working as a database designer for a school. The school needs a database to store information about its students, teachers, and courses. 1. As a database designer, you need to create a design or blueprint for the database, which will define the structure of the data stored in the database, including the relationships between different data entities. What do you call this design? Define the term. **Answer**: Schema: the logical structure of the database The overall design of the database is called the database schema **Entity-Relationship Model (ER Model)** ✔ This model is a high level data model ✔ Represents the real – world problem as a pictorial representation  2. After creating the design, you start populating the database with actual data, such as the names of students, teachers, and courses. What do you call the representation of data in the database that follows the design created in step 1? Define the term. **Answer:** Instance: Databases change over time as information is inserted and deleted. The collection of information stored in the database at a particular moment is called an instance The relational database model is a type of database model based on the relational model of data. It is a logical representation of data that organizes the data into tables of rows and columns, providing a structure that allows us to identify and access data in relation to other data in the database.	**4**	**3**	**1**	**2**	**2.7.2**
8.	Consider the following relations: EMPLOYEE (ENO, NAME, DATE_BORN, GENDER, DATE_JOINED, DESIGNATION, BASIC_PAY, DEPARTMENT_NUMBER) DEPARTMENT (DEPARTMENT NUMBER, NAME)	**4**	**3**	**1**	**2**	**2.6.1**

	Write SQL queries to perform the following: (i) List the details of employees belonging to department number 'CSE'. (ii) List the employee number, employee name, department number and department name of all employees. (iii) List the department number and number of employees in each department. (iv) List the details of employees who earn less than the average basic pay of all employees. **Answer:** 1.SELECT e.emp_id, e.emp_name, e.job_name, e.manager_id, e.hire_date, e.salary, e.commission, e.dep_id, d.dep_name FROM employees e, department d WHERE e.dep_id = d.dep_id; ii.SELECT employee number, employee name FROM employee ordered by department department number,deparment name; iii.SELECT department name ,COUNT(*) FROM employee GROUP BY department d; iv.SELECT emp_name, avg(salary) FROM employee GROUP BY emp_name HAVING avg(salary)< (SELECT avg(salary) FROM employee);					
	Part – C (1 x 12 = 12 Marks) **Answer All**					
9.	i) Consider yourself as a database administrator for a large financial institution that handles sensitive customer data. The company uses a database management system to store all its customer information, transaction information, and other financial data. Explain the role of the storage manager in the database management system. Provide an example of a task that a storage manager might perform in the context of the financial institution. (8 marks) **Answer:** The role of the storage manager in the database management system is to manage the storage systems and data structures that support the database. This includes setting up file systems, determining the best location for data storage, and ensuring that the data is stored in the most secure and efficient manner possible. An example of a task that a storage manager might perform in the context of the financial institution is to create backup procedures to ensure the security and integrity of customer data. This could include setting up automated backups to offsite storage locations to ensure that customer data is always available in the event of a disaster. The storage manager might also create procedures for encrypting customer data and maintaining strict access control policies to ensure that only authorized personnel can access sensitive customer information. ii) Explain why it is important to include a logical level in the database architecture and what role this level plays in data abstraction.(4 marks) **Answer:** The logical level of the database architecture is an important part of data abstraction. It is the layer of abstraction between the physical level (which deals with the actual data and its physical storage) and the user level (which deals with the data as presented to the user). The logical level combines the physical level with the user level, creating a logical view of the data that is easy for both the user and the database administrator to understand. This logical view is used to both create and interpret queries, allowing the user to manipulate the data without having to know the details of how it is stored. The logical level also helps to ensure data integrity and consistency by providing a standard way to access and manipulate the data.	**12**	**4**	**1**	**3**	**3.6.2**

Course Outcome (CO) and Bloom's level (BL) Coverage in Questions


CO Coverage in %
200
100
0
CO1 CO2 CO3 CO4 CO5 CO6

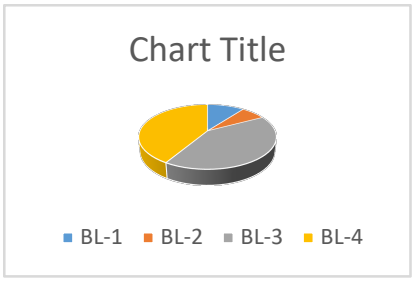


Chart Title
BL-1
BL-2
BL-3
BL-4