Continuous Assessment Test (CAT) – I – FEB 2024

Programme	:	M.Tech CSE with Specialization in Business Analytics(integrated)	Semester	:	Winter 2023-24
Course Code & Course Title	:	SWE1004 Database Management Systems	Class Number	:	CH2023240502516, CH2023240502517
Faculty	:	Dr. Sivabalakrishnan M Dr. Rishikeshan C A	Slot	:	A1+TA1
Duration	:	90 minutes	Max. Mark		50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.
- Use statistical tables supplied from the exam cell as necessary
- Use graph sheets supplied from the exam cell as necessary
- Only non-programmable calculator without storage is permitted

Answer all questions

Q. No	Description	Marks
1.	In a college database system, User-1 is a department secretary who deals with the student details like regno, name, address, phone number. User-2 is a course monitor who deals with students course details like number of courses register in the semester, number of credits register in current semester, number of credits completed, and cgpa. User-3 is an account manager who deals with the regno, name, fee paid, and type of residence (day scholar/hosteller). Show the specific information actually available at each level of schemas with respect to the particular user. Show the specific information actually available at each level of schemas with respect to the particular user.	10
2.	(i) Assume that you are interested in creating a social platform like Facebook. Give suitable reasons and explain why a database approach will be best suited for a social platform data management rather than a file system. Justify your opinion by providing at least 5 salient advantages of database approach in relevance to social media data management, metadata management in social platforms, user data management and handling of features such as likes and comments. [6 Marks] (ii) List any four responsibilities of a database administrator. Discuss any two security measures a DBA can implement to protect sensitive data from unauthorized access. [4 Marks]	10
3.	If VIT University Chennai campus wants to set up a database to record details about its staff employees, and the details about the departments they work in. They intend to record the following information. • For each staff member: his or her staff ID, name, job title, and salary.	10

- For each department, the department name and address.
- For each member of staff, all departments that they belong to. It is required that every member of staff belongs to at least one department.
- For each department, there should be a head of the department. It is required that each department has exactly one head of the department.

Draw an ER diagram that expresses the requirements for the above database scenario. Make sure that you capture all the constraints on the data mentioned above.
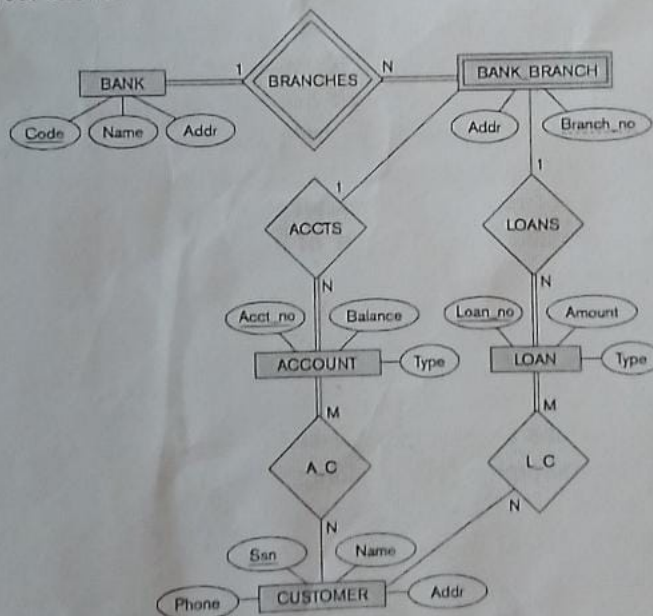

4	Answer each of the following questions considering schema given below.
	
	      Emp (eid, ename, age, salary)
	
	      Dept(did, dname, budget, managerid)
	
	i) Write the SQL statements required to create the above relations, including appropriate integrity constraints.
	ii) Write an SQL statement to add 'Smith' as an employee with eid =110, age=34 and salary =15,000.
	iii) Define the Dept relation in SQL so that every department is guaranteed to have a manager.
	iv) Write an SQL statement to give every employee a 20% raise.
		10

5	Translate the below ER diagram into a set of relations. Mark keys and references clearly in your answer. 	10

**********All the best **************