VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)
CHENNAI

Continuous Assessment Test I – August 2024

Programme	:	B.Tech (CSE)	Semester	:	Fall Semester 2024-2025
Course Code & Course Title	:	BCSE302L & Database Systems	Slot (s)	:	D1+TD1
Faculty	:	Dr. Premalatha M Dr. Gayathri devi S Dr. Vijayakumar K P	Class Numbers	:	CH2024250101247 CH2024250101250 CH2024250101256
Duration	:	90 Mins	Max. Mark		50

Answer all questions

Q. No	Sub Sec.	Description	Marks
1.	a)	Find the minimal cover of the given relation R= {A, B, C, D, E, H}, with the set of Functional Dependencies given below: [7 Marks] FDs: {A → BC, B → CE, A → E, AC → H, D → B}	10
	b)	Consider the schema R= (ABCDEFGH) and the functional dependencies are as follows: [3 Marks] FDs = {BE→GH, G→FA, D→C, F→B} What is/are the candidate keys of this relation? Can there be a key that does not contain D? Justify.	

2.		Consider the following TATA-IPL'2024 player statistics database, which will record information about bowlers, batsmen, and teams. Assume there are 110 bowlers, 110 batsmen, and details for 10 teams in the database.
		The respective schema is as follows:
		Player(PlayerName, Matches)
		Batsman(PlayerName, TeamName, BattingAvg, Highest,TotalRuns)
		Bowlers(PlayerName, TeamName, Rating, Wickets)
		Team (TeamName, Points, TitlesWon, LastWinningYear)
		Write **SQL** queries for the following:
		  i. Create the Batsman table with appropriate key constraints. In the process of creating the associated table, make sure the primary key table is created. [3 Marks]
		  ii. Add not null and check constraints to two different attributes of your choice [2 Marks]
		  iii. Find the bowler names of those who have taken the greatest number of wickets. [2 Marks]
		  iv. Specify the name of the team which has scored more than the average points [3 Marks]
			10

3.		State Government is opening a tender for a construction. Builders can check the tender details; submit a tender, view results and its evaluation process. PWD can open a tender, evaluate a tender, compare tenders submitted and generate reports. Completion of work can also be traced from the system. List the responsibilities of a database-management administrator for the specified scenario. For each responsibility, explain the problems that would arise if the responsibility is not discharged.	10

4.		UPS prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, UPS relies on a company-wide information system. Shipped items are the heart of the UPS product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the UPS system at a single retail center. Retail centers are characterized by their type, uniqueID, and address. Shipped items make their way to their destination via one or more standard UPS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique scheduleNumber, a type (e.g, flight, truck), and a deliveryRoute. Create an Entity Relationship diagram that captures this information about the UPS system. Be certain to indicate/ create identifiers, all types of attributes, participation and cardinality constraints.	10
5.		Convert the Entity Relation diagram in to the relational model. Specify the key attributes for each of the identified relational schema.	10

*****ALL THE BEST*****