Reg. No.:	
Name :	

www.vitbhopal.ac.in

TERM END EXAMINATIONS (TEE) – December 2021- January 2022

Programme	B.Tech - AI&ML,BHI	Semester	Winter 2020-2021
Course Name	Database Management Systems	Code	CSE3001
Faculty Name	Ms.E.Suganya	Slot/Class no.	A21+A22+A23/0367
Time	1½ hours	Max. Marks	50

Answer ALL the Questions

Q. No.		Question Description	Marks
		PART - A – (3 x 10 = 30 Marks)	
1	(a)	(i)Define physical and logical data independence and explain how the different layers of ANSI SPARC architecture help in achieving these?	6
		(ii)Illustrate weak entity and Explain how can convert any weak entity set in to strong entity set by simply adding appropriate attributes, with suitable example	4
		OR	
	(b)	Consider a database with the following schema: Suppliers(sID, sName, address) Parts(pID, pName, colour) Catalog(sID, pID, price) Write relational algebra expressions for the following queries. 1. Find the names of all red parts. 2. Find all prices for parts that are red or green. 3. Find the sIDs of all suppliers who supply a part that is red or green. 4. Find the sids of suppliers who supply some red part or are at 221 Packer Street. 5. Find the pids of the most expensive parts supplied by suppliers named Yosemite Sham. 6. Find the pids of parts supplied by at least two different suppliers.	10
2	(a)	Consider the following schema for OrderDatabase: SALESMAN (Salesman_id, Name, City, Commission) CUSTOMER (Customer_id, Cust_Name, City, Grade,Salesman_id) ORDERS (Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id) Write SQL queries to 1. Count the customers with grades above Bangalore's average. 2. Find the name and numbers of all salesmen who had more than one customer. 3. List all salesmen and indicate those who have and don't have customers in their cities (Use UNIONoperation.) 4. Create a view that finds the salesman who has the customer with the highest	10

		order of a day. 5. Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.	
		OR	
	(b)	Consider the universal relation R(A,B,C,D,E,F,G,H,I,J) and the set of FD's. G=({A,B}->{C}->{B,D}->{E,F},{A,D}->{G,H},{A}->{I},{H}->{J}). (i)What is the key of R? (ii) Decompose R into 2NF, then 3NF relations.	10
3	(a)	Construct a B+ tree for the following set of key values under the assumption that the number of key values that fit in a node is 3. Key values (3,10,12,14,29,38,45,55,60,68) Show the steps involved in the following insertions (use your algorithm) Insert 11, insert 30.	10
		OR	

	(b)	Which of the following schedules is (conflict) serializable?
		For each serializable schedule, **formulate** the equivalent serial schedules.
		a. *rl(X); r3(X); WI(X); r2(X); W3(X);*
		b. r l (X); *r3(X); W3(X); WI*(X); *r2(X);*
		c. *r3(X); r2(X); W3(X);* r l (X); *WI*(X);
		d. *r3(X); r2(X);* rl (X); *W3(X); WI*(X);
			10

Part - B – (2 x 10 = 20 Marks)			
4		Elucidate Data models and explain the types of data models with suitable diagram.	10
5		State the difference between dynamic and static hashing. How do these work?	10
⇔⇔⇔			