Q. Code: 828312

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Third Semester

CS18302 – DATABASE MANAGEMENT SYSTEMS

(Computer Science and Engineering)

(Regulation 2018 /2018A)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Student can able to develop database schema models and database development process with various constraints.	**2**
CO 2	Student can design database using E-R modeling and apply normalization techniques over the raw data.	**4**
CO 3	Student will be able to manage the transactions that happens in a database.	**3**
CO 4	Student can able to analyze the storage mechanism and recovery techniques of database system for suitable application.	**3**
CO 5	Student built the skill on various databases and able to design and implement the real world applications.	**3**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Define physical schema and logical schema.	**1**	**2**
2.	List the purpose of Database Management System.	**1**	**2**
3.	Compare Derived and multivalued attribute.	**1**	**3**
4.	Differentiate primary key VS Foreign key.	**1**	**3**
5.	Compare Consistancy Vs Durability.	**2**	**3**
6.	Define the needs of concurrency in database?	**2**	**3**
7.	Define RAID and its types.	**2**	**3**
8.	Difference between functions and procedures in RDBMS.	**2**	**3**
9.	List the importance of Cloud Database.	**3**	**2**
10.	Define the term Metadata.	**3**	**2**

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL

11.(a)	With the help of the block diagram, describe the basic architecture of a database management system	**(14)**	**1**	**2**
	(OR)			
(b)	Consider the employee database, where the primary keys underlined. employee(empno,empname,street,city)works(empno,mpname,companyname, salary)company (companyname,city)manages(empname,management) Give an expression in the relational algebra for each request. 1) Find the names of all employees who work for First Bank Corporation. 2) Find the names, street addresses and cities of residence of all employees who work for First Bank Corporation and earn more than 200000 per annum. 3) Find the names of all employees in this database who live in the same city as the company for which they work.	**(14)**	**1**	**2**
12.(a)	Compare and contrast BCNF with 3NF?	**(7)**	**2**	**3**
	Discuss about Join dependencies and Fifth normal form?	**(7)**	**2**	**3**
	(OR)			
(b)	Explain about Functional Dependencies and its impact on the data base	**(14)**	**2**	**3**
13.(a)	Describe about the Deadlock handling mechanisms	**(14)**	**3**	**3**
	(OR)			

(b)	Consider the following two transactions:
	T1: read(A);
	read(B);
	if A = 0, then B := B + 1;
	write(B).
	T2: read(B);
	read(A);
	if B = 0, then A := A + 1;
	write (A). Add lock and unlock instructions to transactions T1 and T2, so that they observe the two-phase locking protocol. Can the execution of these transactions result in a deadlock? Generalize your view
		(14)	**3**	**3**

14.(a)	Examine about RAID system. How does it improve performance and	**(14)**	**4**	**4**

reliability? Discuss the level 3 and level 4 of RAID.

(OR)

(b)	Identify a B+ tree to insert the following key elements (order of the tree is 3) 5, 3, 4, 9, 7, 15, 14, 21, 22, 23	**(14)**	**4**	**4**
15.(a)	Discuss in detail distributed database.	**(14)**	**5**	**4**

(OR)

(b)	Give the architecture of Multimedia Database.	**(14)**	**5**	**4**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Develop an ER diagram for the "Restaurant Menu Ordering System", which will facilitate the food items ordering and services within a restaurant. The entire restaurant scenario is detailed as follows. The customer is able to view the food items menu, call the waiter, place orders and obtain the final bill through the computer kept in their table. The waiters through their wireless tablet PC are able to initialize a table for customers, control the table functions to assist customers, orders, send orders to food preparation staff (chef) and finalize the customer's bill. The food preparation staffs (chefs), with their touch-display interfaces to the system, are able to view orders sent to the kitchen by waiters. During preparation, they are able to let the waiter know the status of each item, and can send notifications when items are completed. The system should have full accountability and logging facilities, and should support supervisor actions to account for exceptional circumstances, such as a meal being refunded or walked out on.	**(10)**	**2**	**5**