Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Third Semester

COMPUTER SCIENCE AND ENGINEERING

U18CSI3204T: Database Management Systems

COURSE OUTCOMES

CO1: Construct ER Model for a given database application. [K3, S3]
CO2: Design relational schema using database design principles. [K3, S2]
CO3: Identify the Key Constraints for relations and devise queries using SQL. [K4, S3]
CO4: Apply indexing techniques to access and generate user reports for a database. [K3, S2]
CO5: Building Web Applications using PHP & MySQL. [K5, S3]
CO6: Illustrate the concepts for transaction processing and concurrency control for RDBMS. [K3, S2]

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	List four applications you have used that most likely employed a database system to store persistent data.	CO1	[K_2]
2.	Mention the purpose of Instance and schemas in database.	CO2	[K_2]
3.	Compare weak and strong entity sets. Draw ER model for it.	CO3	[K_2]
4.	Specify the constraints which are commonly used in SQL.	CO3	[K_2]
5.	List the anomalies of 1NF.	CO4	[K_2]
6.	How to retrieve records quickly from a database file? Mention its types	CO4	[K_2]
7.	State the term bucket overflow.	CO4	[K_2]
8.	What ways can we retrieve data? On the result sets of MySql using PHP?	CO5	[K_3]
9.	Draw the compatibility matrix for shared and exclusive lock.	CO6	[K_2]
10.	When will you say the two schedules are view serializability?	CO6	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	With a neat sketch, explain database architecture along with its components and also discuss database users and administrators.	16	CO1	[K_1]
12.	a)	Construct an E-R drawing for University database application by considering the below constraints. a. A university has many departments.	12	CO2	[K_3]

b. Each department has multiple instructors (one person is HOD). Here the HOD refers to the head of department.
c. An instructor belongs to only one department.
d. Each department offers multiple courses, each subject is taught by a single instructor.
e. A student may enroll for many courses offered by different departments.

	b)	Differentiate between BCNF, 3NF and 4NF.	4	CO2	[K_2]
13.	a)	Explain the various RAID levels with neat sketch. List the factors to be taken into account while choosing a RAID level.	16	CO3	[K_2]
14.	a)	Construct a B+ tree for the following set of key values. 2, 3, 5, 7, 11, 19, 23, 29, 31. Assume that the tree is initially empty and the values are added in ascending order. Construct a B+ trees for the cases where the number of pointers that will fit in one node is four. Also, show the form of the tree after each of the following series of operations. I) Insert 9 II) Insert 10 III) Insert 8 IV) Delete 23 V) Delete 19.	16	CO4	[K_3]
15.	a)	How do you create a Database using MySQL and PHP?	3	CO5	[K_2]
	b)	Briefly discuss in detail about the steps to build web application using PHP & MySQL.	13	CO5	[K_5]
16.	a)	State the term Transaction. Specify the state of transaction and its properties with examples.	12	CO6	[K_2]
	b)	Differentiate between shared lock and exclusive lock in concurrency control system.	4	CO6	[K_2]

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Please indicate knowledge level (K_1toK_6) and Course Outcome level (CO1 to CO5) against each question for each subdivision.