Reg. No.												

Question Paper Code	12673

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Fourth Semester

Computer Science and Business Systems

20CBPC401 - DATABASE MANAGEMENT SYSTEMS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Define DBMS and Data Models.	2	K1	CO1
2.	Distinguish between primary key and candidate key.	2	K2	CO1
3.	Define SELECT operation in Relational algebra.	2	K1	CO2
4.	Elaborate the term Armstrong Axioms.	2	K2	CO2
5.	What is Query Evaluation Plan?	2	K1	CO3
6.	What is the main aim of query optimization?	2	K1	CO3
7.	Define Ordered Indices.	2	K1	CO4
8.	Define SQL Injection.	2	K1	CO4
9.	What is a rigorous two-phase locking protocol?	2	K1	CO5
10.	Write about the properties of ACID.	2	K2	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	With the help of neat block diagram, explain the basic structure of a database Management system.	13	K2	CO1
		OR			
	b)	Explain in detail about DDL and DML Commands with example.	13	K2	CO1
12.	a)	Define Normalization and its types. Why this college enrolment table is not in BCNF? Explain its rules and how to satisfy BCNF?	13	K2	CO2

Subject-id	Subject name	Professor
101	Java	p.Java
101	C++	p.cpp
103	Java	p.java2
104	C#	p.chash
105	Java	p.java

OR

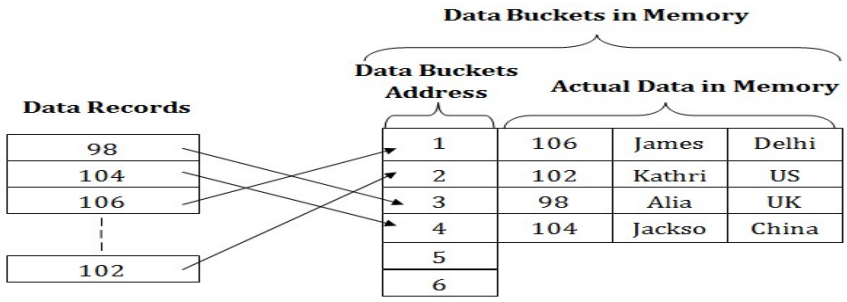
b) Explain about Selection, Projection, Rename, Union, Set Operation and Cartesian product operations in relational algebra. *13 K2 CO2*

13. a) Illustrate and discuss the steps involved in processing a query with neat diagram. *13 K2 CO3*

OR

b) Explain various types of join operations with example. *13 K2 CO3*

14. a) Identify the below example hashing technique and explain its operations in detail. *13 K3 CO4*



OR

b) Describe indexing and the different kinds of indexing. *13 K2 CO4*

15. a) Briefly explain the Concurrency Control techniques in detail *13 K2 CO5*

OR

b) Make use of the following schedules. The actions are listed in the order they are scheduled, and prefixed with the transaction name. *13 K3 CO5*

S1 : T1:R(X), T2:R(X), T1:W(Y), T2:W(Y), T1:R(Y),T2:R(Y)
S2 : T3:W(X), T1:R(X), T1:W(Y),T2:R(Z), T2:W(Z), T3:R(Z)

For each of the schedules, answer the following questions:

(i) What is the precedence graph for the schedule?
(ii) Is the schedule conflict - serializable? If so, what are all the conflict equivalent serial schedules?
(iii) Is the schedule view - serializable? If so, what are all the view equivalent serial schedules?

PART - C (1 × 15 = 15 Marks)

16. a) Explain the functional blocks needed to build a data warehouse with neat diagram. *15 K2 CO6*

OR

b) Explain Distributed and Web databases in Detail. *15 K2 CO6*