THIRUMALAI ENGINEERING COLLEGE

Kilambi, Kanchipuram – 631551.

DEPARTMENT OF CSE & IT

MODEL EXAMIANTIONS

II YEAR / IV Semester (CSE & IT)

CS3492- DATABASE MANAGEMENT SYSTEMS

Date: 17/05/2023 **Total Marks: 100**

PART– A (10x2=20 marks)

1. What is DBMS? Why do we need a DBMS?
2. What is the difference between primary key and foreign key?
3. What are the problems caused by redundancy?
4. Define functional dependency.
5. What are ACID properties?
6. Define deadlock and List four conditions for deadlock.
7. What is the need for RAID?
8. Difference between Static and Dynamic Hashing
9. What is distributed Database system.
10. What is database security?

PART- B (5x13 = 65 marks)

11. (a) i. Explain the overall architecture of database system architecture. (7)

ii. Explain all join operations in relational algebra.. (6)

OR

(a) i. Explain distinction among the terms primary key, candidate key, foreign key and super key with the suitable example? (8)

ii. Explain Various Operations in relational algebra with examples. (5)

12.(a) What is database normalization? Explain the first normal form, second normal form and third normal form.

OR

(b) i. Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted. (5)

ii. Explain with example Join dependencies and fifth normal form. (8)

13. (a) i. What is concurrency control? Explain two phase locking protocol with an example.(7)

ii. Explain Conflict serializability and view serializability.(6)

OR

(b). What is deadlock? How does it occur? How transactions can be written to

(i) Avoid deadlock.

(ii) Guarantee correct execution.

Illustrate with suitable example.

14. (a) i. What is hashing? Explain static hashing and dynamic hashing with an example.(7)

ii. Briefly explain about B+ index file with example.(6)

OR

(b) Give a detailed description about query processing and optimization. Explain the cost estimation of query Optimization.

15. (a). i. Explain about distributed databases and their characteristics, functions and advantages and disadvantages.(7)

ii. What is NOSQL? Explain in detail about different types of NOSQL.(6)

OR

(b).i. Explain in detail about database security issues and privileges.(7)

ii. Explain in detail about Public Key Infrastructures.(6)

PART- C (1x15 = 15 marks)

16. (a).Write the DDL, DML, DCL for the students database. Which contains
Student details: Name, ID, DOB, Branch, DOJ.
Course details: Course Name, Course ID, Stud.ID, Faculty Name, Faculty ID, Marks

OR

(b). Consider the following schedules. The actions are listed in the order they are scheduled, and prefixed with the transaction name.
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 ?

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