DECEMBER 2024 **P/ID 17615/PCA4M/ PCATC**

Time : Three hours Maximum : 80 marks

PART A — ($10 \times 2 = 20$ marks)

Answer any TEN questions.

1. What are the advantages of using DBMS approach?

2. State the need of Query Optimization?

3. Define metadata.

4. What is a weak entity? Give an Example.

5. What are the advantages of functional dependency?

6. Define normalization.

7. What is meant by deadlock?

8. What is the use of RAID?

9. Illustrate the situation to roll back a transaction.

10. Define atomicity.

11. What are the characteristics of homogeneous database?

12. What are the advantages of parallel database?

PART B — ($5 \times 6 = 30$ marks)

Answer any FIVE questions.

13. Differentiate between file processing System and database management system.

14. How to translate SQL queries into Relational Algebra? Explain with examples.

15. Explain how cardinalities, roles, weak entities and weak relations are represented in E-R diagram.

16. Explain about B+ trees indexing concepts with an example.

17. Explain in detail about internal hashing Techniques.

18. Explain the four conditions for dead lock with an example.

19. Illustrate the approaches to store relations in distributed database.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

20. Create the Student Information Table using the given fields and performs the following.

Student_id, studname, Address, City, State, Email, Mark1, Mark2.

(a) Insert 5 records

(b) Add new column named as Total

(c) Update the column Total with Mark 1 + Mark 2

(d) Display all the information from Student table

(e) Display the sum of the column Total

(f) Display all the information from the Student table whose address is null

(g) Display the Student Id and the studname from the Student table who doesn't have an email

(h) Display Students Name whose city is Chennai.

21. Explain 1NF and 2NF with appropriate examples.

22. Describe the different types of file organization. Explain using a sketch of each of them with their advantages and disadvantages.

23. How concurrency control is implemented in DBMS? Briefly explain with suitable diagrams and examples.

24. With the help of a neat block diagram, explain the architecture of a database system.

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