MAY 2023 **P/ID 16303/PIT1C**

Time : Three hours Maximum : 80 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions.

1. What are the components of DBMS?

2. What are the advantages of relational model?

3. What is an index in relational database?

4. Define weak and strong entity sets.

5. What the problems caused by the redundancy?

6. List any three responsibilities of the DB Manager.

7. Demonstrate transitive dependency? Give an example.

8. Define dense and sparse index.

9. When a transaction is said to be rolled back?

10. Define timestamp based protocol.

11. Define interoperation parallelism.

12. What are the components of logical database structure in Oracle database?

PART B — ($5 \times 6 = 30$ marks)

Answer any FIVE questions.

13. List and describe the components of database management system with neat diagram.

14. Explain the various components of ER diagram with examples briefly.

15. Give detail explanation about Query processing/ Optimization overview with example

16. Explain the concepts of concurrent execution in Transaction processing system.

17. Illustrate insertion and deletion of an element in B trees with example.

18. Write short notes on Distributed Transactions.

19. Discuss nested and correlated queries with an example.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

20. Draw an ER Diagram for Banking, University, Company, Airlines, ATM, Hospital, Library, Super market, Insurance Company.

21. Consider the following tables:

Employee (Emp_no, Name, Emp_city)

Company (Emp_no, Company_name, Salary)

(a) Write a SQL query to display Employee name and company name.

(b) Write a SQL query to display employee name, employee city, company name and salary of all the employees whose salary >10000

(c) Write a query to display all the employees working in "XYZ" Company.

22. Define Failure. Explain Log based Recovery (deferred database modification and immediate database modification).

23. Demonstrate searching a given elements in B trees? Explain with example.

24. Explain the following for Distributed database systems.

(a) Distributed Deadlock detection and Prevention

(b) False Deadlocks