TDC (CBCS) Even Semester Exam., 2022

COMPUTER APPLICATION

(4th Semester)

Course No. : CACCC–403T

(Introduction to Database Systems)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *ten* of the following questions : 2×10=20

1. Write down the difference between data and information.

2. What do you mean by Database Management System (DBMS)?

3. What are the basic integrity rules applied in DBMS?

4. What do you mean by derived and multivalued attributes?

5. Briefly define the join operation in relational algebra.

6. Write down the difference between DDL and DML.

7. What is functional dependency? Give example.

8. Write down the limitations of 1NF.

9. Write down the difference between primary key and foreign key.

10. What is locking protocol?

11. What do you mean by commit point of a transactions?

12. What is system log? Give example.

13. Define primary index with example.

14. What are dense index and sparse index in database system?

15. What is file structure in DBMS?

SECTION—B

Answer any *five* of the following questions : 6×5=30

16. Explain different data models in DBMS.

17. Explain the characteristics of database approach.

18. Explain different relational algebra operations used in database systems :

    SELECT, PROJECTION, RENAME, UNION, SET DIFFERENCE, INTER-SECTION, INNER JOIN, OUTER JOIN.

19. What is a view? How is a view defined in SQL? Discuss the problems that may arise when one attempt to update a view. 2+4=6

20. What is normalization? Why is it used to normalize a relation? Briefly explain the 2NF and 3NF. 1+2+3=6

21. Define BCNF. How does it differ from 3NF? Why is it considered a stronger form of BCNF? 2+2+2=6

22. Draw a state diagram for a typical transaction process and discuss the states that a transaction goes through during execution.

23. Explain ACID properties of transaction.

24. Explain different operations performed in a file.

25. Explain multilevel indexing using B-Tree.

★ ★ ★