TDC (CBCS) Even Semester Exam., 2023

COMPUTER APPLICATIONS

(4th Semester)

Course No. : CACCC–403T

(Introduction to Data 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 function of DBA.

2. What do you mean by specialization and aggregation?

3. Write down the difference between weak entity and strong entity.

4. Define the following :
   (a) Data Redundancy
   (b) Composite attribute

5. What are relational constrainty?

6. How does division operation work in relational algebra?

7. What is functional dependency? Give example.

8. What is transitive dependency? Give example.

9. Write down the drawbacks of 3NF.

10. What is commit point of a transaction?

11. What is a schedule?

12. Define database concurrency.

13. What are ordered indices?

14. What is multi-level indices?

15. Write down the advantages of B-tree.

SECTION—B

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

16. Define data abstraction. Explain the three levels of data abstraction. 6

17. Explain data independence. Also explain the difference between physical and logical data independence. 6

18. Draw *E-R* diagram of hospital management system. 6

19. Write short notes on the following : 2+2+2=6
   (a) DML commands
   (b) Aggregate function of SQL
   (c) Nested Query

20. What is meant by the closure of a set of attributes? Explain with example. 6

21. Define the following : 1½×4=6
   (a) Candidate key
   (b) Super key
   (c) Trivial Functional dependency
   (d) Extraneous attribute

22. Explain the shadow paging with a neat diagram of a sample page table. 6

23. What do you mean by deadlock? List and explain several technique for presenting deadlock prevention. 6

24. What is indexing? What are the different types of indices? Explain with example. 6

25. Construct a B + tree with key values : 6

8, 5, 1, 7, 3, 12, 9, 6 of order 3.

Delete the key value 1, 8.

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