

2024/TDC (CBCS)/EVEN/SEM/
CSCDSC/GEC-401T/137

TDC (CBCS) Even Semester Exam., 2024

COMPUTER SCIENCE

(4th Semester)

Course No. : CSCDSC/GEC-401T

(Database Management System)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

UNIT—I

1. Answer any *three* of the following : $1 \times 3 = 3$

(a) What is tuple?

(b) What is arity?

(c) What is relation?

(d) What is key?

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(Turn Over)



(2)

2. Answer any *one* of the following : 2
(a) Define integrity rules.
(b) Write down the responsibility of a DBA.
3. Explain the characteristics of database approach. 5

OR

4. Explain data models with example.

UNIT—II

5. Answer any *three* of the following : 1×3=3
(a) What is derived attribute?
(b) What is entity type?
(c) What is foreign key?
(d) What is aggregation?
6. Answer any *one* of the following : 2
(a) What are the different types of relationship that are used in E-R diagram?
(b) Write down the difference between strong entity and weak entity.
7. Draw the E-R diagram of library management system showing different types of attributes. Also explain the schema of the entities mentioned in the E-R diagram. 5

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(3)

OR

8. Explain different database constraints with example.

UNIT—III

9. Answer any *three* of the following : 1×3=3

- (a) Define DDL.
(b) Write down the purpose of 'group by' clause.
(c) What is nested query?
(d) What is the purpose of rollback command?

10. Answer any *one* of the following : 2

- (a) Mention different data types used in SQL.
(b) Write down the advantages of relational data model.

11. Briefly explain the following : 1½+1½+2=5

- (a) Selection
(b) Projection
(c) Join

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(Turn Over)

(4)

OR

12. Explain the following with syntax : $1 \times 5 = 5$
- (a) CREATE
 - (b) UPDATE
 - (c) TRUNCATE
 - (d) DROP
 - (e) RENAME

UNIT—IV

13. Answer any *three* of the following : $1 \times 3 = 3$
- (a) What is normalization?
 - (b) What is transitive dependency?
 - (c) What are the drawbacks of 3NF?
 - (d) Define relational mapping.
14. Answer any *one* of the following : 2
- (a) Define functional dependency with example.
 - (b) What are Armstrong axioms?
15. Explain different steps to convert EER model to relational model. 5

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(5)

OR

16. Explain 2NF and 3NF. Also show the differences between these two. $1\frac{1}{2} + 1\frac{1}{2} + 2 = 5$

UNIT—V

17. Answer any *three* of the following : $1 \times 3 = 3$
- (a) What is system log?
 - (b) Define checkpoint.
 - (c) Define consistency.
 - (d) What do you mean by serializability?

18. Answer any *one* of the following : 2

- (a) What do you mean by concurrency control mechanism?
- (b) What is locking protocol? Give example.

19. Draw a state diagram for a typical transaction process and discuss the states that a transaction goes through during execution. 5

OR

20. In database system, when does a deadlock occur? Explain with example.

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