Reg. No ..... Name **25U334-S**

BCA DEGREE END SEMESTER EXAMINATION - OCTOBER 2025

SEMESTER 3 : MOBILE APPLICATIONS AND CLOUD TECHNOLOGY

COURSE : **19U3CRBCA9 : RDBMS**

(For Improvement/Supplementary 2023/2022/2021/2020/2019/2018/2017/2016 Admissions)

Time : Three Hours Max. Marks: 75

PART A
Answer All (1 mark each)

1. Define View in a Database.
2. List the basic database operations in a transaction.
3. What do you mean by rollback?
4. What is mean by Prime attributes?
5. Define trivial dependency.
6. Write relational algebraic expression to list all staff with salary greater than 10000.
7. What is the objective of two phase commit?
8. Illustrate the advantage of hierarchial data model.
9. Extract the advantage of the network data model over a hierarchical data model.
10. Interpret the cardinality of a relation.

(1 x 10 = 10)

PART B
Answer any 8 (2 marks each)

11. Consider the following relation: EMPLOYEE (SSN, NAME, GENDER, AGE, SALARY)
    Construct an SQL command to retrieve the list of employees whose name starting with 'S'.
12. Describe the use of DML preprocessors.
13. Explain the purpose of creating a checkpoint.
14. Define locking. What is the difference between shared lock and exclusive lock?
15. Explain the types of database users in DBMS.
16. Define the foreign key.How does it play a role in the join operation?
17. What is the use of ORDER BY clause?
18. Which are the conflicting operations in a transaction?
19. Describe second normal form with an example.
20. Consider the relation R=(ABCD) and the set of functional dependencies F=[AB→CD, D→A]. Identify all the candidate keys of the relation R?

(2 x 8 = 16)

PART C
Answer any 5 (5 marks each)

21. Define Data manipulation language. Explain any three DML commands with example.
22. Explain ACID properties of a transaction.
23. Consider the relation R=(ABCDE), the set of functional dependency F=[A→BC] and the decomposition R1(ABC) and R2(CDE):
    a) Is the decomposition is lossless? Why?
    b) Is the decomposition dependency preserving?
24. Explain record based data models.
25. Discuss various entity integrity constraints.
26. What is multivalued attributes.Write notes on INF and illustrate the same with a suitable example.
27. Construct examples for ER model relationship types: one-to-one, one-to-many, many-to-many.

(5 x 5 = 25)

PART D

Answer any 2 (12 marks each)

28. Explain about conflict serializability and view serializability.

29. Explain the Database system Architecture with a neat diagram in detail.

30. Explain 1NF, 2NF, 3NF and BCNF. Consider the relation R=(ABCDEFGHIJ) and the set of functional dependencies F=[AB->C, A->DE, B->F, F->GH, D->IJ]. Normalize R into 2NF, 3NF and then into BCNF.

31. Consider the following relations:
EMPLOYEE(SSN, NAME, GENDER, AGE, SALARY, DNUM)
DEPARTMENT(DNO, DNAME, DPHONE)
PROJECTS(PNO, PNAME)
WORK_ON(SSN, PNO)
Construct the SQL expressions for retrieve the list of employees and the projects they are working on, ordered by department and within each department alphabetically by first name then last name.

(12 x 2 = 24)