Reg. No ..... Name **22U328**

BCA DEGREE END SEMESTER EXAMINATION : OCTOBER 2022

SEMESTER 3 : MOBILE APPLICATIONS AND CLOUD TECHNOLOGY

COURSE : **19U3CRBCA9 : RDBMS**

(For Regular - 2021 Admission and Improvement / Supplementary - 2020/ 2019/ 2018/ 2017/ 2016 Admissions)

Time : Three Hours Max. Marks: 75

PART A

Answer All (1 mark each)

1. Describe the implementation of time stamps.
2. What is mean by aborted state in a transaction?
3. Write relational algebraic expression to list all staff with salary greater than 10000.
4. Construct a Relational Schema for a relation?
5. What is mean by Prime attributes?
6. Define the cardinality of a relationship.
7. What is mean by failed state in a transaction?
8. Define BCNF.
9. Define Data.
10. Write the syntax for alter command.

(1 x 10 = 10)

PART B

Answer any 8 (2 marks each)

11. Describe the use of DML preprocessors?
12. What is the use of CHECK command? Give an example.
13. Define locking? What is the difference between shared lock and exclusive lock.
14. Construct an SQL command to show the resulting salaries if every employee working on the 'ProductX' project with a 10 percent raise.
15. What is dirty read? Explain with example?
16. What is mean by dependency preservation in a decomposition of a table?
17. Explain how locking works?
18. Consider the schema EMPLOYEE (FNAME, LNAME, AGE, SALARY). Construct an SQL query to retrieve the list of employees whose age is greater than 35 and the salary is between 1000 and 3000.
19. Consider the relation R=(ABCDE) and the set of functional dependencies F = {A → C, E → D, B →C}. Identify all the candidate keys of the relation R?
20. Illustrate the cardinality in the ER model and list the types of cardinality.

(2 x 8 = 16)

PART C

Answer any 5 (5 marks each)

21. Explain the lost update problem in concurrent transaction with an example.
22. Explain three schema architecture.
23. Discuss the various types of attribute in an ER Model? Explain how they are denoted in an ER model with real time example?
24. Consider the relation R=(ABCDE), the set of functional dependency F=[A→BC, C→D] and the decomposition R1(ABC) and R2(CDE):

a) Is the decomposition is lossless? Why?
b) Is the decomposition dependency preserving?

25. Consider the relation R=(ABCDE), the set of functional dependency F=[A→BC] and the decomposition R1(ABC) and R2(ADE):
a) Is the decomposition is lossless? Why?
b) Is the decomposition dependency preserving?
26. Discuss the characteristics of relations that make them different from ordinary tables and files?
27. Define Data Definition language. Explain any three DDL commands with example.

(5 x 5 = 25)

PART D

Answer any 2 (12 marks each)

28. Explain about the fundamental operations of relational algebra.
29. Explain 1NF, 2NF, 3NF, and BCNF. Consider the relation R=(ABCDE) and the set of functional dependencies F=[A->B, B→E, C→D]. Normalize R into 2NF and then into 3NF.
30. Explain recoverable and non-recoverable schedule with example?
31. A university registrar's office maintains data about the following entities: (a)courses, including number, title, credits, syllabus, and prerequisites; (b) course offerings, including course number, year, semester, section number, instructor(s),timings, and classroom; (c) students, including student-id, name, and program; and (d) instructors, including identification number, name, department, and title. Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.

(12 x 2 = 24)