

**THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2021**

Data Science

BCS DS 3C 03—DATABASE MANAGEMENT SYSTEM

(2020 Admissions)

Time : Two Hours

Maximum : 60 Marks

**Section A (Short Answer Type Questions)**

*Answer at least **eight** questions.*

*Each question carries 3 marks.*

*All questions can be attended.*

*Overall Ceiling 24.*

1. Write any *two* merits of DBMS over file systems.
2. Differentiate RDBMS and Object Relational DBMS.
3. Define Schema. Give an example.
4. Define strong and weak entities.
5. Define primary key and foreign key.
6. Give any *two* justifications for normalization.
7. Define functional dependency. Give examples.
8. What is a View ?
9. Give the syntax of CREATE and SELECT commands in SQL.
10. Differentiate between UNION and UNION ALL.
11. Compare “collection” in MongoDB with “table” in RDBMS.
12. List the ACID properties.

(8 × 3 = 24 marks)

**Turn over**

**Section B (Short Essay Type Questions)**

*Answer at least five questions.*

*Each question carries 5 marks.*

*All questions can be attended.*

*Overall Ceiling 25.*

13. Discuss three schema architecture of DBMS.
14. Explain how ER model helps in the design of relational database.
15. Explain SELECT and PROJECT operations in relational algebra with examples.
16. Define second and third normal forms. Give examples.
17. Compare Boyce Codd Normal form and fourth normal form. Discuss fifth normal form with an example.
18. Explain SQL join operations with suitable examples.
19. Discuss the features of MongoDB.

(5 × 5 = 25 marks)

**Section C (Essay Type Questions)**

*Answer any one question.*

*The question carries 11 marks.*

20. List the most common SQL constraints. Demonstrate how these constraints are defined with suitable examples. With the help of examples explain the use of GROUP BY, HAVING and ORDER BY.
21. What is a Transaction ? Give example. Discuss COMMIT and ROLLBACK operations. Explain the need for concurrency control. Illustrate how two phase locking scheme works.

(1 × 11 = 11 marks)