

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Question Paper Code:U4C01**

B.E./B.Tech. DEGREE EXAMINATION, NOV2023

Fourth Semester

Computer Science and Business Systems

21UCB401– DATABASE MANAGEMENT SYSTEM

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

- |                                                                                  |        |
|----------------------------------------------------------------------------------|--------|
| 1. Explain the components of the storage manager.                                | CO1- U |
| 2. Define weak and strong entity sets?                                           | CO1- U |
| 3. Write the differences between Primary Key and Foreign Key                     | CO2- U |
| 4. Explain the types of joins in SQL?                                            | CO2- U |
| 5. “BCNF is found to be stricter than third normal form”. Justify the statement. | CO3- U |
| 6. Define Functional Dependency.                                                 | CO3- U |
| 7. Describe ACID properties.                                                     | CO4- U |
| 8. What is meant by log based recovery?                                          | CO4- U |
| 9. What are the properties of B trees?                                           | CO5- U |
| 10. What is meant by query optimization?                                         | CO5- U |

PART – B (5 x 16= 80 Marks)

- |                                                                                        |        |      |
|----------------------------------------------------------------------------------------|--------|------|
| 11. (a) Explain in detail about the databasesystem architecture with suitable diagram. | CO1- U | (16) |
|----------------------------------------------------------------------------------------|--------|------|

Or

- |                                                                  |        |     |
|------------------------------------------------------------------|--------|-----|
| (b) (i) Discuss about different types of Data models?            | CO1- U | (8) |
| (ii) Explain the disadvantages of using file processing systems. | CO1- U | (8) |

12. (a) Write the DDL, DML, DCL commands for the students database. CO2- U (16)  
Which contains students details: name, id, DOB, branch, DOJ.  
Course details: Course name, Course id, Studid, Faculty name, id, marks
- Or
- (b) With relevant examples discuss the various fundamental CO2- U (16)  
operations in Relational Algebra.
13. (a) Define a functional dependency. List and discuss the inference CO3- U (16)  
rules for functionaldependencies. Give relevant examples.
- Or
- (b) What is Normalization? Explain 1NF, 2NF, 3NF and BCNF with CO3- U (16)  
suitable example.
14. (a) What is deadlock? When does it occur? How is it detected in CO4- U (16)  
database system? How can it be avoided? Discuss in detail.
- Or
- (b) What is concurrency control? Explain the two phase locking CO4- U (16)  
protocol with an example.
15. (a) Explain the steps in query processing with the help of a neat CO5- U (16)  
diagram.
- Or
- (b) Describe the different types of file organization with their CO5- U (16)  
advantages and disadvantages.