



'সমানো মন্ত্র: সমিতি: সমানী'

**UNIVERSITY OF NORTH BENGAL**  
B.Sc. Honours 4th Semester Examination, 2023

**CC10-COMPUTER SCIENCE (43)**

**DATABASE MANAGEMENT SYSTEMS**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
All symbols are of usual significance.*

**GROUP-A**

**Answer any five of the following**

1×5 = 5

1. Define foreign key.
2. What is a conflict in a transaction?
3. What do you mean by functional dependency?
4. Define relationship.
5. What is granularity?
6. What is locking in DBMS?
7. Define view in DBMS.
8. What is a serial schedule?

**GROUP-B**

**Answer any three of the following**

5×3 = 15

9. Discuss the 3-tier ANSI/SPARC database architecture along with its advantages.
10. Suppose that we decompose the schema,  $R = (A, B, C, D, E)$  into  $(A, B, C)$  and  $(A, D, E)$ . Show that this decomposition is lossless given,  $FD = \{A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A\}$ .
11. What do you mean by weak and strong entity sets? Discuss with example.
12. Discuss data independence with suitable examples.
13. Explain the advantages of DBMS over file-oriented systems.

**GROUP-C**

**Answer any two of the following**

10×2 = 20

14. Draw an ER diagram of a library management system, clearly highlighting the entities, relationships, primary keys and foreign keys.
15. Discuss different constraints encountered in database design.
16. Discuss different relational algebra operations.
17. Explain hierarchical, network and relational data models.

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