



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours/Programme 2nd Semester Examination, 2022

**CMSHGEC02T/MSGCOR02T-COMPUTER SCIENCE (GE2/DSC2)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.*

**Answer Question No.1 and any *four* from the rest**

1. Answer any *four* questions from the following: 2×4 = 8
- (a) Differentiate between schema and instances.
  - (b) Define Primary Key and Foreign Key.
  - (c) What do you mean by minimal cover of a set of functional dependencies?
  - (d) What is the difference between project and select operators?
  - (e) Why are duplicate tuples not allowed in a relation?
  - (f) What is recursive relationship in an ER model?
  - (g) Define integrity constraints.
2. Consider the following relational schema:
- Customers (Cid, Cname, City, Discount)  
Agents (Aid, Aname, City, Percent)  
Products (Pid, Pname, City, Quality, Price)  
Orders (Ordno, Month, Cid, Aid, Pid, Qty, Rupees)
- Write queries in SQL for the following:
- (a) Get the Aid's and Aname's of agents with Aname beginning with the letter N. 2
  - (b) Get product names ordered by customers based in Bangalore. 2
  - (c) Find the number of products in the company. 2
  - (d) Find the name of all existing customers in the city Kolkata. 2
3. (a) What is Metadata and what is a data dictionary? (2+2)+2+2
- (b) Explain different types of database.
  - (c) What is data dictionary and Attribute?

4. (a) What is the use of functional dependencies? 2+(2+2)+2  
(b) Define BCNF. How does it differ from 3NF?  
(c) Explain trivial dependency.
5. (a) Explain the terms with example— 1NF, 2NF, 3NF. 6+2  
(b) What is aggregation?
6. Write short notes: 4+4  
(a) Transaction Management  
(b) Query processor.
7. Describe the properties of decompositions. How do you protect your database? 4+4  
Explain.

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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