

**WEST BENGAL STATE UNIVERSITY**

B.Sc. Honours/Programme 2nd Semester Examination, 2022

CMShGEC02T/CMShGCOR02T-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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