



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours/Programme 2nd Semester Examination, 2020

**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.*

**GROUP-A**

1. **Answer any four questions from the following:** 2×4 = 8
- (a) What do you mean by DDL and DML?
  - (b) What are the functions of DBA?
  - (c) What is data dictionary?
  - (d) What is an ER diagram?
  - (e) What is functional dependency?
  - (f) What is instance?
  - (g) Define strong entity set with and example.

**GROUP-B**

**Answer any four questions from the following** 8×4 = 32

2. (a) What do you mean by derived attribute? 2+(2+2)+2
- (b) Briefly explain the following Relational algebraic operations with example.  
(i) Cartesian Product (ii) Select Operation
- (c) What is Normalization?
3. (a) What do you mean by generalization and specialization? 2+2+4
- (b) What is mapping constraints?
- (c) Draw an ER diagram for a library management system.
4. Consider the following relational schema 2×4 = 8
- Account (account-number, branch-name, balance)
- Loan (Loan-number, branch-name, balance)
- Depositor (Depositor-Id, Customer-name, Account-number)
- Borrower (Borrower-Id, Customer-name, Loan-number)

Write queries in SQL for the following:

- (a) Find all loan numbers for loan made at Bombay branch.
- (b) Find all customers who have both a loan and an account at the bank.
- (c) Find the average account balance at each branch.
- (d) Find the number of depositors at each branch.

5. Write short notes on any **four** of the following: 2×4 = 8

- (a) Schema
- (b) Relational Algebra
- (c) Super Key
- (d) DBA
- (e) Foreign Key

6. (a) What is 3NF? Give example. 2+2+4

- (b) What do you mean by dependency preservation?
- (c) Decompose the following relation R till  
3NF. R (ABDLPT).FD: {B@PT, T@L, A@D}

7. (a) What is DBMS? 2+2+2+2

- (b) Write the advantages of DBMS over file management system.
- (c) What is Referential Integrity?
- (d) What is ACID property?

**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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