



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 an 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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