WEST BENGAL STATE UNIVERSITY

B.Sc. Honours/Programme 2nd Semester Examination, 2023

CMSHGEC02T/CMSGCOR02T-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) What do you mean by DDL and DML?
   (b) What is functional dependency?
   (c) What is a CLAUSE in term of SQL?
   (d) Define: Integrity constraints in DBMS.
   (e) Define: Super Key and Candidate Key.
   (f) How is relational Model different from Network Data Model?
   (g) Write down the functions of DBA.

2. (a) What is the advantage of using DBMS over traditional file systems?   2+2+2+2
   (b) Define cardinality.
   (c) What is domain of a relation?
   (d) Define redundancy with example.

3. (a) What is weak entity set? How it can be shown in a ER diagram?   (2+2)+4
   (b) Show with the help of an example, how a weak entity can be related with a strong entity set in respect of relation.

4. (a) What is Metadata and what is data dictionary?   (2+2)+2+2
   (b) What are the different type of relationship in the DBMS?
   (c) Use of DROP and DELETE command.

5. (a) What is Normalization?   2+(2+2)+2
   (b) Define: BCNF. How does it differ from 3NF?
   (c) Why it is considered stronger than 3 NF?

6. Consider the following relational schema: 2+2+2+2

    Account (*account-number*, branch-name, balance, customer-name)

    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 the names of all branches in the loan relation.

(b) Find all loan numbers for loan made at Kolkata branch.

(c) Find all customers who have a loan, an account, or both.

(d) Find the number of depositors in the bank.

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

(a) Security features in DBMS

(b) Relational Algebra

(c) ACID Property.

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