

B.Sc. Semester-IV Examination, 2022-23

COMPUTER SCIENCE [Honours]

Course ID : 41513

Course Code : SH/CSC/403/C-10

Course Title : Database Management Systems

Time : 1 Hour 15 Minutes

Full Marks : 25

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

UNIT-I

1. Answer any five of the following questions: $1 \times 5 = 5$

- a) Define one-to-many relationship.
- b) What is weak entity?
- c) What is metadata? Give example.
- d) Write the full form of DML.
- e) Distinguish between relational algebra and relational calculus.
- f) What do you mean by data redundancy?
- g) When a relation is said to be in 2NF?
- h) What is multi valued attribute?

[Turn Over]

UNIT-II

2. Answer any two of the following questions: $5 \times 2 = 10$

- a) Briefly discuss different roles of database administrator.
- b) Write differences between specialization and aggregation. What do you mean by referential integrity? Give example. $2+3=5$
- c) Explain five functions in SQL with syntax and example.
- d) Explain the terms: Functional dependency and Lossless Join. $2\frac{1}{2} \times 2 = 5$

UNIT-III

3. Answer any one of the following questions:

$10 \times 1 = 10$

- a) Discuss different advantages and disadvantages of using DBMS. Draw an ERD for banking system.

$5+5=10$

- b) Consider the following relation scheme:

Employee (emp-name, street, city)

Works (emp-name, company-name, salary)

Company (company-name, city)

Manages (emp-name, manager-name)

Write down relational algebra expressions and SQL queries for the following:

- i) Find the names of all employees who work for First Bank Corporation.
- ii) Find the names of all employees who live in the same city as the company for which they work.
- iii) Find the names of all employees who live in the same city and same street as do their managers.
- iv) Find the name of all employees who earn more than every employee of Small Bank Corporation.
- v) Find the name of all employees who do not work for First Bank Corporation.