

**Three/Four Year B.C.A. II Semester
Examination – July 2024**

(Faculty of Science)

(Three-Year scheme of 10+2+3 Pattern)

Paper – BCA – 52T – 109

DATABASE MANAGEMENT SYSTEM

Time Allowed: Three Hours

Maximum Marks – 80

QUESTION PAPER CONSISTS OF TWO PARTS A AND B.

Part A : 20 Marks

Part A is compulsory having 10 very short answer-type questions (with a limit of 20 words) of two marks each. The first question is based on knowledge, understanding and applications of the topics/text covered in the syllabus.

(भाग अ में दो अंक के 10 अति लघुउत्तरीय प्रश्न (20 शब्दों की सीमा के साथ) अनिवार्य हैं। पहला प्रश्न पाठ्यक्रम में शामिल विषयों / पाठ के ज्ञान, समझ और अनुप्रयोगों पर आधारित हैं।)

Part B : 60 Marks

Part B of the question paper is divided into four units comprising question numbers 2 – 5. There is one descriptive question from each unit with internal choice. Each question will carry 15 marks.

(भाग ब के प्रश्न पत्र को प्रश्न संख्या 2–5 सहित चार इकाइयों में विभाजित है। प्रत्येक इकाई से आंतरिक विकल्प के साथ एक वर्णनात्मक प्रश्न है। प्रत्येक प्रश्न 15 अंक का है।)

PART – A

1. Attempt all the question. Each question carries 2 marks.

[2*10=20]

- (a) What is a DBMS?
- (b) What is Data Independence?
- (c) What are Schemas?
- (d) What is Data Modeling?
- (e) What is a Relational Model?
- (f) What is Transaction?

- (g) What is Deadlock?
- (h) What is Database Recovery?
- (i) Define Data Type in SQL.
- (j) What is the role of Aggregation Function?

PART – B

2.

- (a) What are the difference between Database System and File System? [7]
- (b) What are the different types of data model? Explain each. [8]

OR

- (a) Describe the role and responsibilities of a database administrator. [7]
- (b) Explain the architecture of a Database Management System. [8]

3.

- (a) Discuss the different types of relationship in E – R diagrams with examples.
How do these relationships impact database design? [10]
- (b) Explain the concepts of Super Key and Candidate Key. [5]

OR

Explain the concept of relational algebra and its operations. provide examples of how these operations are used. [15]

4. Discuss the importance of normalization in relational database. What are the normal forms and their significance? [15]

OR

- (a) Explain the different types of failures in a database system. How are these failures classified and what are their typical causes? [8]

(b) Describe the concepts of Recovery and Atomicity in database system. How does log-based recovery ensure these concepts? [7]

5.

(a) What are the different type of SQL JOINS and how do they differ? [8]

(b) What are SQL subqueries and how they used? [7]

OR

(a) Explain the following SQL commands with examples. [10]

- (i) Delete
- (ii) Insert
- (iii) Update
- (iv) Select
- (v) Create

(b) What is View and how to create View? [5]
