

97671

B.C.A. 3rd Semester (Full & Reappear)

Examination, December - 2024

INTRODUCTION TO DATABASE SYSTEMS

Paper -BCA-203

Time allowed : 3 hours]

[Maximum marks : 80

Note : Question No. 1 is compulsory. Attempt five questions in total, the first being compulsory and select one question from each unit.

1. (a) What is Data independence? 2
- (b) What is Data Abstraction? Explain by taking suitable example. 2
- (c) Differentiate between Data and Information. 2
- (d) Who are database designers? How are they different from Application developers? 2
- (e) What is conceptual modeling? 2
- (f) What are ER diagrams? 2
- (g) Define functional dependency. 2
- (h) Write the "INSERT" command of SQL by taking an examples. 2

97671-P-4-Q-9(24)

[P.T.O.]

Unit - I

2. What is Database system? How is Database system different from a traditional file-based system? Explain its components, advantages, and disadvantages in detail.

16

3. (a) What is a Database Management System? What are the main functions of a DBMS? Explain. 8

- (b) Write short note on the following : $2 \times 4 = 8$

(i) DBMS Languages

(ii) Database Administrator

Unit - II

4. (a) Explain the Three-level architecture of a DBMS.

8

- (b) What is data independence? Differentiate between logical Data independence and physical data independence.

8

5. Differentiate between the following: $2 \times 8 = 16$

(a) Centralized and Client-server architecture of DBMS.

(b) Record-based and Object-based data models.

Unit - III

6. Write short note on the following : $2 \times 8 = 16$

(i) Entity Relationship Model

(ii) Role of Abstraction and Integration of Data in DBMS

7. What are data models? Explain Hierarchical, Network and Relational Data models in detail. 16

Unit - IV

8. (a) What is relational Algebra? Explain in detail. 8

(b) What are Normal forms? Explain the different Normal Forms in detail with the help of examples.

8

9. (a) What is Query Processing? How do we optimize a query? Explain its algorithms. 8

(b) What is SQL? Explain the various types of SQL commands. 8