2604N443

Candidate's Seat No : _____

B.Sc. Semester-4 Examination

CC-205

Computer Science

April-2024

Relational Database Management System

Time: 2 hours 30 Minutes **Total Marks: 70**

Q1(A) Define DBMS and explain its significance in modern computing. (7)

Q1(B) Discuss the differences between a file processing system and a database management system (DBMS). How does a DBMS address the limitations of file processing systems? (7)

OR

Q1(A) Explain the concept of data independence in the context of a DBMS. Why is it important for database design and management? (7)

Q1(B) Describe the components of a typical database system architecture. Explain the role of each component in managing and accessing data. (7)

Q2(A) Compare and contrast the relational, hierarchical, and network models of database management. Provide examples of scenarios where each model would be most appropriate. (7)

Q2(B) Discuss the advantages and disadvantages of using a distributed database management system (DDBMS) compared to a centralized DBMS. What are the key challenges in managing distributed databases? (7)

OR

Q2(A) Define normalization and describe its importance in database design. Discuss the various normal forms and explain how they help in reducing data redundancy and improving data integrity. (7)

Q2(B) Define PL/SQL and explain its significance in database programming. (7)

Q3(A) Discuss the key characteristics of PL/SQL and how they contribute to its effectiveness in database management. (7)

Q3(B) Explain the structure of a PL/SQL block and its components. (7)

OR

Q3(A) Describe the different types of PL/SQL blocks and provide examples of their usage. (7)

Q3(B) Explain the concept of control structures in PL/SQL and provide examples of their application. (7)

Q4(A) Describe the exception handling mechanism in PL/SQL and discuss its role in ensuring robustness in database applications. (7)

Q4(B) Explain the difference between implicit and explicit cursors in PL/SQL. Provide examples to illustrate their usage. (7)

OR

Q4(A) Discuss the role of PL/SQL functions and procedures in database programming, highlighting their differences and similarities. (7)

Q4(B) Explain how triggers are used in PL/SQL and discuss their significance in database management. Provide examples to demonstrate their usage in different scenarios. (7)

Q5 **MCQ Attempt any seven out of twelve.(2 Marks each)** **(14)**

1) What does DBMS stand for?

N443-2

a) Database Management System
b) Digital Business Management Software
c) Data Business Management System
d) Dynamic Business Management Service

2) Which of the following is NOT a function of a DBMS?
a) Data Storage
b) Data Retrieval
c) Data Transmission
d) Data Manipulation

3) Which component of a DBMS stores metadata?
a) Query Processor
b) Database Engine
c) Data Dictionary
d) Transaction Manager

4) In a DBMS, what is the primary key used for?
a) To uniquely identify each row in a table
b) To link two tables together
c) To store sensitive information
d) To speed up data retrieval

5) Which of the following is NOT a type of DBMS?
a) Relational DBMS
b) Object-Oriented DBMS
c) Hierarchical DBMS
d) Structured DBMS

6) Which language is commonly used to query databases in a DBMS?
a) SQL (Structured Query Language) b) HTML (Hypertext Markup Language)
c) CSS (Cascading Style Sheets) d) Python

7) Which of the following is NOT a benefit of using a DBMS?
a) Improved data security b) Data redundancy c) Data integrity
d) Data consistency

8) Which component of a DBMS is responsible for managing concurrent access to the database?
a) Query Processor b) Transaction Manager c) Data Dictionary
d) Database Engine

9) What is normalization in the context of DBMS?
a) A process of organizing data to minimize redundancy
b) A process of encrypting data for security
c) A process of deleting old data
d) A process of creating backups

10) Which of the following is NOT a level of data abstraction in a DBMS?
a) Physical level b) Logical level c) External level d) Personal level

11) What is a foreign key in a relational database?
a) A key that uniquely identifies each record in a table
b) A key that links two tables together
c) A key that ensures data consistency
d) A key that is used for encryption

12) Which of the following is an example of a relational database model?
a) MongoDB b) Oracle c) PostgreSQL d) Cassandra

ALL THE BEST