

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Third Semester)

Branch – COMPUTER SCIENCE

DATABASE MANAGEMENT SYSTEMS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 In a Data Flow Diagram (DFD), what does a rectangle represent?
(i) A data store (ii) A process
(iii) An external entity (iv) A data flow
- 2 DML is used to optimize the database for performance by creating and
(i) indexes (ii) views
(iii) indexes and views (iv) None of the mentioned
- 3 In a DBMS, what is the main function of an exception handler?
(i) To optimize database queries for better performance
(ii) To enforce data integrity constraints like primary keys and foreign keys
(iii) To manage and respond to unexpected errors and issues that arise during database operations.
(iv) To schedule and automate routine database maintenance tasks.
- 4 Which of the following statements is true about NoSQL databases?
(i) They are exclusively designed for structured data storage.
(ii) They primarily use the SQL query language for data retrieval.
(iii) They are typically used for handling unstructured or semi-structured data
(iv) They strictly follow the ACID properties for data consistency
- 5 In MongoDB, which of the following is a unique identifier automatically assigned to each document in a collection?
(i) Document ID (ii) Record Key
(iii) ObjectId (iv) Primary Key

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Explain the key components of a typical Database System Architecture.
OR
b What are the function of selection and projection operation in DBMS?
- 7 a Explain the concept of set functions in a database query.
OR
b Provide a simple example to illustrate how SQL UPDATE statement is used to modify data in a relational database.
- 8 a Explain the characteristics of functions and procedures.
OR
b Define and explain the user-defined exceptions in SQL.

Cont...

- 9 a Comparison of SQL and NoSQL databases.
OR
b What are the Key Characteristics of Graph Databases?
- 10 a Write an example of how to create and interact with a MongoDB collection using the MongoDB shell.
OR
b Write an overview of each CRUD operation.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a What is the Significance and How DFDs work?
OR
b Explain the concept of normalization in the context of relational databases. What are the key normal forms and the benefits of normalizing a database?
- 12 a Describe the commonly used SQL Group Functions with their purposes.
OR
b Describe the primary functions and operations of DML, and how DML statements are used to manipulate data in a database.
- 13 a Explain the concepts of PL/SQL and its significance in Oracle Database.
OR
b Using explicit cursor (emp_cursor) fetch and process multiple employee records from the "Employees" table.
- 14 a Explore the differences between ACID and BASE.
OR
b Write an example of a simple document structure in MongoDB.
- 15 a Describe the key features and characteristics of MongoDB for modern database applications.
OR
b What are the common data types supported by MongoDB? Explain.

Z-Z-Z

END