

-Mid-West University

## Examinations Management Office

End-Semester Examinations -2080

Bachelor level/ B.E. Computer/3<sup>rd</sup> Semester

Full Marks: 50

Time: 3 hours

Pass Marks: 25

**Subject: Database Management System (CO432/CO506)**

- Attempt all the questions.
- Figures in the margin indicate full marks.
- Assume suitable values, with a stipulation, if necessary.
- Candidates are required to answer the questions in their own words as far as possible.

1. Why do organizations need a robust and efficient Database Management System (DBMS)? What are some of the key benefits that a DBMS can provide? [5]
2. What do you mean by schema and instances? Mention the different levels of data abstraction and explain. [5]
3. Describe the role of DDL and DML statements in SQL. Provide examples of common DDL and DML operations and explain their use cases. [5]
4. Why do we need normalization? Explain the condition of 3NF and BCNF with suitable example. [1+4]
5. In the context of databases, what is data integrity, and why is it crucial? Describe various types of data integrity constraints and their roles in maintaining data quality. [5]
6. Explain the concept of access control in database systems, and how it is used to manage user access to data. What are some of the key considerations and best practices for implementing access control in a database system? [5]
7. Explain the process of query optimization. What is the significance of materialized views? [5]
8. Describe the different file organizations that are commonly used in database systems, such as sequential files, indexed sequential files. What are the key features and limitations of each type of file organization, and how are they used in database systems? [5]
9. Explain the concept of shadow paging. Compare it with Log based recovery. [5]
10. Explain the ACID properties that should be ensured for transactions. [5]

OR

Write short notes on any two of the following; [2x2.5]

- a. Hashing and hash function
- b. B-Tree index files

**The End**