Graphic Era
HILL UNIVERSITY
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Mid Term (Odd) Semester Examination October 2024

Roll no. 2392164

Name of the Course and semester: BCA III Semester
Name of the Paper: Introduction to Database Management Systems
Paper Code: TBC302

Time: 1.5 hour   Maximum Marks: 50

Note:
- *(i)* Answer all the questions by choosing any one of the sub questions
- *(ii)* Each question carries 10 marks.
- *(iii)* Please specify COs against each question.

Q1.   (10 Marks)
a. Compare the Database Management System (DBMS) with a File System. What are the limitations of File Systems that DBMS overcomes?

OR

b. Explain the concept of data models in DBMS. Discuss the various types of data models with examples.

Q2.   (10 Marks)
a. Discuss the Three Schema Architecture of DBMS. Explain how it helps in achieving data independence.

OR

b. What are Database Languages and Interfaces? Briefly explain DDL, DML, and DCL, and how they interact with DBMS.

Q3.   (10 Marks)
a. What are the different types of keys in the Entity-Relationship (ER) Model? Explain Super Key, Candidate Key, and Primary Key with examples.

OR

b. Discuss the concepts of Generalization, Specialization, and Aggregation in the ER Model. Provide examples to illustrate each concept.

Q4.   (10 Marks)
a. Explain how ER diagrams can be reduced to relational tables. Include examples of mapping constraints and keys in your answer.

OR

b. Explain all Codd's rules for a relational database management system (RDBMS) with examples.

Q5.   (10 Marks)
a. Define and explain the key constraints (Entity Integrity, Referential Integrity) and Domain Constraints in the Relational Data Model.

OR

b. Write and explain any five basic operations of Relational Algebra with suitable examples.