

Exam. Code : 107203

Subject Code : 2093

BCA 3<sup>rd</sup> Semester

**DATABASE MANAGEMENT SYSTEM**

**Paper—II**

Time Allowed—3 Hours]

[Maximum Marks—75

**Note** :— Attempt any **FIVE** questions. All questions carry equal marks.

1. (a) Compare the features of Network, Hierarchical and Relational model.  
(b) What do you mean by recovery of database ? Discuss the various mechanisms used for recovery of database. 8,7
2. (a) What are triggers ? Also explain the use of triggers in database.  
(b) Discuss the anomalies of un-normalized database. 8,7
3. (a) Discuss the three level architecture of Database Management System.  
(b) What are the various methods of concurrency control ? Explain in detail the two-phase locking protocol. 8,7
4. (a) What is Normalization ? Explain the various types of normal forms with example.  
(b) What are the different threats to data security ? Explain. 8,7

5. (a) Discuss the concept of entity relationship model.  
How it helps in designing relational databases ?
- (b) Differentiate between functions and procedures in PL/SQL. 8,7
6. (a) Explain the role of keys in relational database.  
Elaborate the various types of keys.
- (b) Discuss the use of selection and join operators on SQL based queries. 8,7
7. (a) What is meant by physical and logical data independence ? How are they implemented ? Explain.
- (b) Differentiate between transitive dependency and multivalued dependency. 8,7
8. Write short notes on :
- (a) Big Data
- (b) NoSQL
- (c) Cursors. 5,5,5