

**4<sup>TH</sup> SEM./ CS&E /IT/ 2023(S)**  
**TH4 Database Management System**

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2  
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
  - a. Define Entity and Entity set.
  - b. Compare between primary key and Foreign key.
  - c. What do you mean by data redundancy?
  - d. What is concurrency control?
  - e. Define briefly data independence?
  - f. Define selection and projection operations of relational algebra.
  - g. Define tuple.
  - h. What is schema and sub-schema?
  - i. What is the need for database system?
  - j. What are the responsibilities of DBA?
  
2. Answer **Any Six** Questions 6 x 5
  - a. Explain briefly the basic components of Database.
  - b. What do you mean by ACID properties in DBMS?
  - c. Explain different languages present in DBMS.
  - d. What is a Lock in database? Write the difference between Live Lock & Dead Lock.
  - e. Explain the 3-Level architecture with a suitable diagram.
  - f. What do you mean by E-R Model? Draw an E-R Diagram with suitable entities & attributes.
  - g. Explain the concept of mapping constraints with suitable example.
  
3. What is normalization? Explain 1NF, 2NF, 3NF & BCNF with example 10
4. What is data model? Explain all types of data model briefly. 10
5. Define functional dependency. Explain the loss less join concept with suitable example. 10
6. What is a join in SQL? Classify the different types of joins. Explain with example. 10
7. Write down the syntax & queries of the following SQL Commands 10
  - i) Create
  - ii) Insert
  - iii) Delete
  - iv) Rename
  - v) Select