

Bachelor of Computer Application (BCA)

3rd Sem. (Batch 2023-26) (CBGS)

DATABASE MANAGEMENT SYSTEM

Paper : BCA03002T

Time Allowed—3 Hours]

[Maximum Marks—100

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. What are the different types of data models supported by database system ? What is the difference between Hierarchical Model and Network Model ? Explain in detail. 20
2. Explain the following concepts giving suitable example of E-R Diagram :
 - (a) Strong Entity.
 - (b) Weak Entity.

(c) Relationships.

(d) Specialization.

(e) Generalization.

$5 \times 4 = 20$

SECTION—B

3. Explain Normalization. Explain the concept of multi-valued dependency with an example. How would you remove it to achieve 4NF ? 20

4. (a) Explain the significance of the DBTG report in the development of database management systems. 10

(b) Describe the principle of least privilege and its importance in database security. 10

SECTION—C

5. (a) Explain the concept of DCL. Explain the use of DCL statements using suitable examples. 10

(b) Explain the use of Union, Intersection and Minus function using suitable example. 10

6. What is a cursor in a database, and why is it used ? How would you use the % FOUND, %NOTFOUND, %ROWCOUNT, and %ISOPEN attributes in a SQL block ? 20

SECTION—D

7. How does big data differ from traditional data processing systems ? Write some popular tools used in big data analytics. Provide examples of how big data analytics is used in different industries. 20

8. What are NoSQL databases ? How does NoSQL differ from traditional relational databases ? Explain some advantages of NoSQL databases. 20