BCA Examination, 2024-25

(Odd Semester)

DATABASE MANAGEMENT SYSTEM

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION–A

1. Attempt all parts of the following : 8×1=8

   (a) Define a database management system.

   (b) What is the purpose of a foreign key?

   (c) Name any two types of database model.

   (d) What is a tuple in the context of database?

   (e) What is meant by data independence?

(f) Define delete command in SQL.

(g) Define transaction in the context of database.

(h) What is a subquery?

SECTION – B

2. Attempt any two parts of the following : 2×6=12

(a) Describe data independence. Differentiate between logical and physical data undependence with suitable example.

(b) Explain the concept at normalization and also describe the 3NF with the help of suitable example.

(c) Discuss the concept of transaction state. Explain the different states a transaction can be in during its life cycle.

(d) Define Union, Intersection and Set Difference oeprations in relational algebra with example.

SECTION – C

Note :– Attempt all questions. Attempt any two parts from each questions. 8×5=40

3. (a) Explain the advantages and disadvantages of a database management system.

(b) Explain the concept weak and strong entity set. Also provide example for each.

(c) Define referential integrity. How is it enforced in an RDBMS using primary and foreign key.

What is a unique constrain How is a

4. (a) Design an E-R diagram for an online shopping system that includes entities such as customers, orders, products and payments. Clearly indicate attributes for each entity and their relationship between them.

(b) Describe the purpose and syntax of the CREATE and DROP statements in SQL and provide example for each.

(c) Define fully functional dependence. How does it differ from partial dependency?

5. (a) Given a relation R with the functional dependency $\{X \rightarrow Y, Y \rightarrow Z\}$, use Armstrong's axioms to derive all possible functional dependencies.

(b) Discuss the different types of joins available in SQL with example.

(c) Explain the concept of deadlock and what strategies can be used to defect.

(a) Discuss the different types of database recovery techniques used to ensure data consistency after a transaction failure.

(b) Define concurrency control in DBMS. Explain its significance in maintaining the consistency and isolation properties of transactions with example.

(c) What are aggregate function in SQL? Explain at least four aggregate functions.

⌘⌘⌘