CBCS SCHEME

USN | | | | | | | | | | |

15CS53

Fifth Semester B.E. Degree Examination, June/July 2023
Database Management System

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Define DBMS. Discuss the advantages of DBMS over the traditional file system. **(08 Marks)**

b. Explain the component modulus of DBMS and their interaction, with the help of a diagram. **(08 Marks)**

OR

2 a. Define the following with an example :
i) Weak entity type
ii) Participation constraints
iii) Cardinality ratio
iv) Recursive relationship. **(08 Marks)**

b Draw an ER diagram of Banking system taking into account atleast five entities, indicate all keys, constraints and assumptions that are made. **(08 Marks)**

Module-2

3 a. Discuss the Entity integrity and Referential integrity constraints. Why is each considered important? **(06 Marks)**

b. Discuss the following relational algebra operations. Illustrate with an example for each : JOIN, DIFFERENCE, SELECT, UNION. **(10 Marks)**

OR

4 a. Give the E.R to relational mapping algorithm. Discuss each step with an example. **(10 Marks)**

b. Explain the following in SQL :
i) Unspecified WHERE – clause and use of the Asterisk.
ii) Explicit sets and NULLS.
iii) Renaming attributes and joined tables. **(06 Marks)**

Module-3

5 a. How are triggers and assertions defined in SQL? Explain. **(08 Marks)**

b. How are views created and dropped? Explain how the views are implemented and updated. **(08 Marks)**

OR

6 a. Explain the Single – tier and Client – server architecture, with a neat diagram. **(08 Marks)**

b. Explain the following :
i) Embedded SQL
ii) Database stored procedure. **(08 Marks)**

Module-4

7 a. Explain any two informal quality measures employed for a relational schema design. (04 Marks)

b. Explain 1NF , 2NF and 3NF with an example for each. (12 Marks)

OR

8 a. Define Multivalued dependency. Explain 4NF, with an example. (08 Marks)

b. Define JOIN dependency. Explain 5NF, with an example. (08 Marks)

Module-5

9 a. Why Concurrency control is needed demonstrate with example? (12 Marks)

b. Discuss the desirable properties of transactions. (04 Marks)

OR

10 a. When deadlock and starvation problem occurs? Explain how these problems can be resolved. (09 Marks)

b. Explain how shadow paging helps to recover from transaction failure. (07 Marks)

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