4TH SEM. / CSE/IT /2022(S)

TII-4 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. What do you mean by data redundancy?
b. Define the terms instance and schema.
c. What is composite key?
d. Define database management system.
e. Explain the role of DBA.
f. Define serializability.
g. Define a partial dependency.
h. Why views are created in database?
i. What is data dictionary?
j. Define query language.

2. Answer Any Six Questions 6 x 5

a. What is Normalization? Why it is required? Explain the Boyco-codd normal form with example.
b. Explain the 3-tier schema architecture of DBMS.
c. What do you mean by relational algebra? Explain the following relational algebra operations with example.
i)Projection ii) selection iii)full outer join
d. Explain the concept of mapping constraints with suitable example.
e. Explain briefly all the Data Definition Language commands with suitable example.
f. What is E-R diagram? Explain with suitable example.
g Define the following terms
i)Tuple ii)Attribute iii)Primary Key
iv)Foreign Key v)Domain

3 What is transaction processing? Explain the different states of transaction. Discus ACID properties. 10

4 What is encryption? Describe the different encryption technique. 10

5 Write the SQL commands with example of following 10

i) Create Table
ii) Viewing data of tables
iii) Updating the contents of table
iv) Modify the structure of a table
v) Insert data into table

6 What is data concurrency? Explain the working of concurrency control mechanism. 10

7 What is database system. Explain briefly the different components of Database System. 10

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TH4 Database Management System

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
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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

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Th-4 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. What do you mean by data redundancy?
b. Define cardinality.
c. Define the RENAME operation used in relational algebra.
d. Define super key. How it is different from primary key?
e. Define RDBMS.
f. Write the different data types used in ORACLE.
g. State the transaction operations.
h. Define serializability.
i. What is VIEW?
j. Define schema and sub schema.

2. 6 x 5

a. **Define transaction.** State & explain the various states of transaction.
b. **State & explain about** the TEDD CODD's rules. (any five)
c. **Describe the SELECT &** PROJECT operation used in relational algebra with **example.**
d. **Define anomalies. Classify** the types of anomalies.
e. **Briefly explain the three** level schema architecture of DBMS with a neat and **clean diagram.**
f. **Differentiate between** hierarchical data model & network data model.
g. **Explain the concept of** two phase locking.

3. **Compare the 1st, 2nd & 3rd** normal form with suitable example. 10

4. **Briefly explain the components** of DBMS. 10

5. **Define DEADLOCK. Describe** the deadlock avoidance & recovery techniques **used in DBMS.** 10

6. **What is the purpose of** ER diagram? What are the different symbols used in **ER diagram? Draw & explain** the ER diagram for a business transaction **involving sales, marketing, production** & purchase department. 10

7. **Write down the syntax with a suitable** example for each of the following SQL **commands.** 10

i. **Alter**
ii. **Insert**
iii. **Update**
iv. **Select**
v. **Delete**