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DMS

B.Tech. Examination, 2016

(Fourth Semester)

(CS & IT Branches)

Paper - IV

DATA BASE MANAGEMENT SYSTEM

Time Allowed : Three Hours

Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

- Q. 1.** (a) Discuss the main characteristics of the database approach and how it differs from traditional file systems. 10
(b) What is an entity type ? What is an entity set ? Explain the differences among an entity, an entity type, and an entity set. 10
- Q. 2.** (a) How does tuple relational calculus differ from domain relational calculus ? 10
(b) List the data types that are allowed for SQL attributes. 10
- Q. 3.** (a) Define join dependencies and fifth normal form. Why is 5NF also called project-join normal form (PJNF) ? 10
(b) What is the lossless (or nonadditive) join property of a decomposition ? Why is it important ? 10

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Q. 4. (a) Discuss the atomicity, durability, isolation and consistency preservation properties of a database transaction. **10**

(b) Discuss the different types of failures. What is meant by catastrophic failure ? **10**

Q. 5. (a) What additional functions does a DDBMS have over a centralized DBMS ? Explain in detail. **10**

(b) Discuss two multiversion techniques for concurrency control. **10**

Q. 6. (a) Discuss the entity integrity and referential integrity constraints. Why is each considered important ? **10**

(b) Define the following terms : **10**

- (i) Domain
- (ii) Attribute
- (iii) Degree of a relation
- (iv) Relation schema
- (v) Relation state

Q. 7. Write short notes on any four of the following : **5×4=20**

- (i) DML
- (ii) Generalization
- (iii) Cursors
- (iv) MVD
- (v) Directory system

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B.Tech. Examination, 2015

(Fourth Semester)

(CS & IT Branches)

Paper - IV

DATA BASE MANAGEMENT SYSTEM

Time Allowed : Three Hours

Maximum Marks : 100

Note : Attempt any FIVE questions. All questions carry equal marks.

- Q. 1.** (i) Distinguish between procedural and non-procedural DML's. 10
(ii) Define BCNF. How does BCNF differ from 3NF ? Explain with an example. 10
- Q. 2.** (i) Explain the difference between a weak and strong entity set. 10
(ii) What are the SQL constructs to modify the structure of tables, views and to destroy the tables and views. 10
- Q. 3.** (i) With an example, explain serial and non serial serializability schedule. 10
(ii) What do you mean by locking techniques of concurrency control ? Discuss the various locking techniques and recovery with concurrent transaction also in detail. 10

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Q. 4.

Explain the following:

- (i) ER model
- (ii) Relational and tuple calculus

Q. 5.

(i) Describe the term MVD in the context of relational database management system by giving an example. Discuss 4NF and 5NF also. 10

(ii) Discuss the selection, projection and join operator of relational algebra with suitable example. 10

Q. 6.

(i) Why would choose a database system instead of simply storing data in operating system files? When would it make sense not to use a database system? 10

(ii) Write the SQL expressions for the following relational database? 10

sailor_schema (sailor_id, Boat_id, sailorname, age)

Reserves (Sailor_id, Boat_id, Day)

Boat_schema (Boat_id, Boatname, color)

(a) Find the age of the youngest sailor for each rating level?

(b) Find the No. of reservations for each red boat?

(c) Find the average age of sailor for each rating level that at least 2 sailors.

(d) Find the age of the youngest sailor who is eligible to vote for each rating level with at least two such sailors?

Q. 7.

Write short notes on the following:

5×4=20

- (i) Extended ER model
- (ii) Triggers
- (iii) Deadlock handling
- (iv) Case study of oracle
- (v) Keys

B. Tech. Examination, 2014

(Fourth Semester)

(CS & IT Branches)

Paper - IV

DATA BASE MANAGEMENT SYSTEM

Time Allowed : Three Hours

Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

Q. 1. (a) What is data independence ? Explain the differences between physical and logical data independence. 10

(b) List the ACID properties. Explain the usefulness of each. 10

Q. 2. What does E-R model mean ? Construct an F-R diagram for an insurance company with a set of customers, each of whom owns number of cars, also each can have number of recorded accident associated with it. 20

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- Q. 3.** What is normalization ? Explain 1 NF, 2 NF and 3 NF with the help of examples. 20
- Q. 4.** (a) Explain conflict serializability with example. 10
(b) Explain view serializability with example. 10
- Q. 5.** (a) What are the relational algebra operations supported in SQL ? Write the SQL statement for each operation. 10
(b) Explain the various indexing schemes used in database environment. 10
- Q. 6.** (a) List the different levels in RAID technology and explain its features. 10
(b) What is distributed database ? What are the objectives while designing distributed databases. 10
- Q. 7.** Write short notes on following : 5×4=20
(a) Oracle Vs DB2
(b) 2-phase commit protocol
(c) Data dictionary
(d) Locking techniques for concurrency control
(e) Triggers