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SE-7363

B. E. - IV (Sem. VII) (Computer Engg./I.T.) Examination

April / May – 2011

Database Management System

Time :3 Hours] [Total Marks : **100**

Instructions :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ B. E. - 4 (SEM. 7) (COMPUTER ENGG/I.T.)

Name of the Subject :

☛ Database Management System

☛ Subject Code No. : 7 3 6 3 ☛ Section No. (1, 2,.....) : NIL

Seat No. :

Student's Signature

1. Use Separate answer sheet for each section
2. Make assumption whenever required.
3. Numbers on the right indicate maximum marks.

SECTION I

1 **(A)** **Answer the following (Any Four):** **4**

1 Domain constraints and referential-integrity constraints are special forms of assertions. State TRUE or FALSE.

2 _____ normal form is based on join dependency.

3 What do you mean by Integrity Constraints?

4 What is Data Warehouse?

5 Define B^+ tree.

(B) **Define the following (Any Three):** **6**

1 Assertions and Triggers

2 Extraneous Attributes

3 Persistent programming language

4 Multivalue Dependency

(C) Design a database for a software company 'Sneh Info systems'. The company employs a number of programmers who are assigned to work on specific projects. Each project is controlled by one manager. Each programmer works on only one project but contributes to the writing of several programs. Each program may be written by one or more programmers. A programmer may be proficient in one or more than one programming languages and a project involves use of one or more programming languages. **10**

Design a suitable set of relations to hold this data. Assume that the entities shown have at least the following attributes:

Employee: Employee Number, Name, Address, City, Salary
Project: Project code, Start date, planned finish date
Program: Program number, Title, Language
Add appropriate entities and additional data if necessary.

Create the database for the above system and normalize it upto BCNF.

2 **(A)** Explain Dense and Sparse Indices with example. **8**

OR

Explain various steps in query processing. **8**

(B) Suppose we are given a relation scheme **5**

$R = (A, B, C, G, H, I)$, and the set of functional dependencies:

$A \rightarrow B$
$A \rightarrow C$
$CG \rightarrow H$
$CG \rightarrow I$
$B \rightarrow H$

Findout the closure of a set of functional dependencies.

(C) What do you mean by superkey and candidate key? **2**

3 **Attempt the following (Any Three):** **15**

1. Explain RAID level 0 to level 4.
2. Write a short note on Temporal Databases.
3. Explain Decision Support System in brief.
4. Explain Armstrong's Axioms.

SECTION – II

4 **(A)** Answer the following. **10**

1. Enlist ACID properties of transaction and explain any one.

2. Define deadlock and give one example.

3. What benefit is provided by rigorous two phase locking?

4. What do you mean by recoverable schedule?

5. Every conflict serializable schedule is view serializable. (True / False).

Justify your answer.

(B) Explain conflict serializablity in detail with example. **10**

5 **(A)** Draw and explain state transition diagram of transaction. **8**

(B) Explain in detail log based recovery. **7**

OR

5 **(A)** Write a note on deadlock detection and recovery **8**

(B) Discuss stable storage implementation. **7**

6 Write notes on any **THREE** of the following. **15**

1. Thomas Write rule
2. Shadow paging.
3. Graph based protocol.
4. What is Cascade less schedule? Why is cascadelessness of schedules desirable?
