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Question Paper Code : 51383

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Fourth Semester

Computer Science and Engineering

CS 2255/CS 46/CS 1254/10144 CS 406/080250009 – DATABASE MANAGEMENT SYSTEMS

(Regulations 2008/2010)

(Also common to PTCS 2255 – Database Management Systems for B.E. (Part-Time) Third Semester – CSE – Regulations 2009)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A ($10 \times 2 = 20$ Marks)

1. List four significant differences between a file-processing system and a DBMS.
2. What are the different types of Data Models ?
3. What is the use of Assignment operator in relational algebra with an example.
4. What is the use of unique statement ?
5. Define Boyce Codd Normal Form.
6. What is the need for Normalisation ?
7. What is slotted page sheet ? Draw the diagram.
8. What is the content of update log record ?
9. Describe Tuning.
10. What are ordered indices ?

PART – B ($5 \times 16 = 80$ Marks)

11. (a) Discuss in detail about database system architecture with neat diagram.

OR

- (b) Draw an E-R diagram for a banking enterprise with almost all components and explain.

12. (a) Consider the following schema :

Suppliers (sid : integer, sname : string, address: string)

Parts (pid : integer, pname : string, color : string)

Catalog (sid : integer, pid : integer, cost : real)

The key fields are underlined, and the domain of each field is listed after the field name. Therefore sid is the key for suppliers, pid is the key for Parts, and sid and pid together form the key for Catalog. The Catalog relation lists the prices charged for parts by Suppliers. Write the following queries in relational algebra and SQL.

- (i) Find the *sids* of suppliers who supply some red or green part.
- (ii) Find the *sids* of suppliers who supply every part.
- (iii) Find the *sids* of suppliers who supply every red part of supply every green part.

OR

(b) Briefly explain about fundamental, additional operations in SQL with example.

13. (a) (i) Explain how dangling tuple may arise and also explain problems they/that may cause. (6)
- (ii) Explain the process of normalization from 1NF to BCNF stage with example. (10)

OR

(b) Consider the relation R(A, B, C, D, E) with functional dependencies.
{A → BC, CD → E, B → D, E → A}, Identify Super keys. Find Fc, F+. (16)

14. (a) Illustrate deadlock and conflict serializability with suitable example.

OR

- (b) (i) Explain two phase commit protocol. (10)
- (ii) Write different SQL facilities for recovery. (6)

15. (a) (i) Explain magnetic disk and tertiary storage. (8)
- (ii) Write a note on Hashing. (8)

OR

(b) Explain the steps involved in query processing. Give examples. (16)