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Question Paper Code: 44205

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Fourth Semester

Computer Science and Engineering

14UCS405 - DATABASE MANAGEMENT SYSTEMS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- _____ users form their requests in a database query language.
(a) Naïve (b) Sophisticated (c) Specialized (d) Programmer
- _____ represent relationship sets in ER diagram
(a) Diamonds (b) Rectangles
(c) Double diamonds (d) Lines
- A command to remove a relation form an SQL database
(a) Delete table <table name> (b) Drop table <table name>
(c) Erase table <table name> (d) Alter table <table name>
- The _____SQL component of SQL allows programs to construct and submit SQL queries at runtime.
(a) Dynamic (b) Embedded (c) Static (d) None of these
- A _____ consists of a sequence of query and/or update statements.
(a) database (b) relation (c) schedule (d) transaction

6. If a transactions T_i has obtained _____ lock on item Q, then T_i can read, but cannot write Q
- (a) Shared mode (b) Exclusive mode
(c) Unshared mode (d) None of these
7. _____ indices is based on the uniform distribution of values across a range of buckets
- (a) Ordered (b) Hash (c) Dense (d) Sparse
8. B+tree index takes the form of a _____ in which every path from the root of the tree to a leaf of the tree is of the same length.
- (a) balanced tree (b) binary tree
(c) search tree (d) none of these
9. _____ of transactions is an important issue in building a distributed database system.
- (a) Integrity (b) Atomicity
(c) Concurrency (d) Durability
10. People view multimedia data through various devices, collectively referred to as
- (a) terminals (b) displays (c) monitors (d) None of these

PART - B (5 x 2 = 10 Marks)

11. List four significant differences between a file-processing system and a DBMS.
12. Define ACID property.
13. Classify the types of failure in database transaction.
14. Name the advantages of distributed databases.
15. Define clustering.

PART - C (5 x 16 = 80 Marks)

16. (a) A University Registrar's office maintains data about the following entities:
- (i) courses, including number, title, credits, syllabus, and prerequisites;
- (ii) course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom;
- (iii) students, including student-id, name, and program;

(iv) instructors, including identification number, name, department, and title.

Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the Registrar's office. (16)

Or

(b) (i) Explain the different kinds of data models. (8)

(ii) Explain Boyce-Codd normal form with example and also compare BCNF and 3NF. (8)

17. (a) (i) With suitable examples write about set comparison, set union, sub-queries in the from clause and scalar sub-queries in SQL. (8)

(ii) Illustrate the concept of embedded SQL with suitable example. (8)

Or

(b) (i) Describe how the dead lock occurs. How it can be prevented? (8)

(ii) Explain the transaction states with suitable diagram. (8)

18. (a) Identify the occurrence of deadlock in a system. Explain the two approaches to prevent deadlock. (16)

Or

(b) Discuss in detail about transaction properties and two phase commit protocol. (16)

19. (a) List the different levels in RAID and explain its features. (16)

Or

(b) Explain hash file organization in detail. (16)

20. (a) Explain in detail the database security. (16)

Or

(b) (i) Compare Database and Information Retrieval system. (6)

(ii) Draw the Information Retrieval framework and explain its process. (10)

