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Question Paper Code: 43805

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

Third Semester

Information Technology

14UIT305 - DATABASE SYSTEMS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A Database Management System is
 - (a) Collection of interrelated data
 - (b) Collection of programs to access data
 - (c) Collection of data describing one particular enterprise
 - (d) All the above
2. Administrative supervision of database activity is responsibility of
 - (a) Database Administrator
 - (b) Database Manager
 - (c) DB Server
 - (d) Programmer
3. Which one of the following is used to define the structure of the relation, deleting relations and relating schemas?
 - (a) Data Manipulation language
 - (b) Data Definition Language
 - (c) Query
 - (d) Relational Schema

4. In course (course_id, sec_id, semester), the course_id, sec_id and semester are _____ and course is a _____.
 - (a) relations, attribute
 - (b) attributes, relation
 - (c) tuple, relation
 - (d) tuple, attributes
5. Who developed the normalization process.
 - (a) E.F. codd
 - (b) F.F. codd
 - (c) E.E. codd
 - (d) None of the mentioned
6. Which forms are based on the concept of functional dependency?
 - (a) 1NF
 - (b) 2NF
 - (c) 3NF
 - (d) 4NF
7. In order to undo the work of transaction after last commit _____ is used.
 - (a) View
 - (b) Commit
 - (c) Rollback
 - (d) Flashback
8. A transaction that completes its execution successfully is said to be _____.
 - (a) Active
 - (b) Aborted
 - (c) Failed
 - (d) Committed
9. Tertiary storage is built with
 - (a) A lot of money
 - (b) Unremovable media
 - (c) Removable media
 - (d) Secondary storage
10. How many tables can be included with a join?
 - (a) One
 - (b) Two
 - (c) Three
 - (d) All the above

PART - B (5 x 2 = 10 Marks)

11. What is E-R model?
12. The employee information in a company is stored in the relation Employee (name, sex, salary, deptName)
Write the SQL query for the average salary of male employees is more than the average salary in the company.
13. Differentiate between partial functional dependencies with full functional dependency.
14. State the benefits of strict two - phase locking.
15. List the factors to be considered in choosing a RAID level.

PART - C (5 x 16 = 80 Marks)

16. (a) Describe with a neat diagram the three schema architecture of a database system. (16)

Or

(b) Discuss the various notations used in ER model. Draw an ER model for hospital information system. (16)

17. (a) Differentiate relation algebra from relational calculus. Explain the basic relational algebraic expressions with an example. (16)

Or

(b) Discuss the strengths and weakness of the trigger mechanism. Compare triggers with other integrity constraints supported by SQL. (16)

18. (a) Illustrate the use of functional dependency and multivalued dependency with suitable examples. (16)

Or

(b) Explain 1NF, 2NF, 3NF and BCNF with suitable example. (16)

19. (a) Explain various recovery techniques during failure of a transaction in detail along with system recovery. (16)

Or

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

(ii) Classify the rules for conflict and view serializability. (8)

20. (a) (i) What is RAID? Explain in detail. (10)

(ii) Describe static hashing and dynamic hashing. (6)

Or

(b) (i) Draw and explain the structure of B+ tree index files. (10)

(ii) Compare and Contrast RAID level 3 and level 4. (6)

