Reg. No. : ☐☐☐☐☐☐☐☐☐☐

Question Paper Code: 41835

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. In an Entity-Relationship diagram, rectangles represents

    (a) Entity sets   (b) Attributes   (c) Database   (d) Tables

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. Minimal Super keys are called

    (a) Schema keys   (b) Candidate keys
    (c) Domain keys   (d) Attribute keys

5. A relation that has no partial dependencies is in which normal form

    (a) First   (b) Second   (c) Third   (d) BCNF

6. A functional dependency between two or more non-key attributes is called

   (a) Transitive dependency   (b) Partial transitive dependency

   (c) Functional dependency   (d) Partial Functional dependency

7. In order to undo the work of transaction after last commit which one should be used

   (a) View   (b) Commit   (c) Rollback   (d) Flashback

8. The deadlock state can be changed back to stable state by using _____ statement.

   (a) Commit   (b) Rollback   (c) Save point   (d) Deadlock

9. Which level of RAID refers to disk mirroring with block striping?

   (a) RAID level 1   (b) RAID level 2

   (c) RAID level 0   (d) RAID level 3

10. How many tables can be included with a join?

   (a) One   (b) Two   (c) Three   (d) All the above

<div align="center">PART - B (5 x 2 = 10 Marks)</div>

11. What is E-R model?

12. Define Triggers.

13. What is BCNF?

14. List out the two-phase locking.

15. Define RAID.

<div align="center">PART - C (5 x 16 = 80 Marks)</div>

16. (a) With a neat diagram, explain the database system architecture. (16)

<div align="center">Or</div>

(b) Construct an E-R diagram for a car-insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. State any assumptions you make. (16)

17. (a) (i) Discuss in detail the operators SELECT, PROJECT, UNION with suitable examples. (6)

   (ii) Consider the database given by the following schemes. Customer (Cust_No, Sales_ Person_No ,City) Sales_ Person(Sales_ Person_No ,Sales_ Person_Name, Common_Prec,Year_of_Hire) Give an expression in SQL for each of the following

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queries: 1. Display the list of all customers by Cust_No with the city in which each is located. 2. Select Cust No, city from Customer 3. List the names of the sales persons who have accounts in Delhi. 4. Select Sales_Person_Name from Sales_Person_Name where(select * from customer where city = delhi).　　(10)

Or

(b) (i) What is a view? How can it be created? Explain with an example.　　(8)

(ii) Explain static and dynamic SQL in detail.　　(8)

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

Or

(b) Discuss Join dependencies and fifth normal form, and explain why 5NF.　　(16)

19. (a) Discuss on strict, two-phase locking protocol and time stamp-based protocol.　　(16)

Or

(b) (i) Explain Time stamp-Based Concurrency Control protocol and the modifications implemented in it　　(10)

(ii) Describe the concept of serializability with suitable example.　　(6)

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

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

Or

(b) (i) Describe the structure of B+ tree and give the algorithm for search in the B+ tree with example.　　(10)

(ii) Describe the structure of multimedia databases.　　(6)

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