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Question Paper Code: 43805

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. The Rectangles divided into two parts represents
(a) Entity set (b) Relationship set (c) Attributes (d) Primary key
2. The attribute AGE is calculated from DATE_OF_BIRTH. The attribute AGE is
(a) Single valued (b) Multi valued (c) Composite (d) Derived
3. Database _____, which is the logical design of the database, and the database _____, which is a snapshot of the data in the database at a given instant in time.
(a) instance, schema (b) relation, schema
(c) relation, domain (d) schema, instance
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 level of RAID refers to disk mirroring with block striping?
 (a) RAID level 1 (b) RAID level 2
 (c) RAID level 3 (d) RAID level 0
7. A system is in a _____ state if there exists a set of transactions such that every transaction in the set is waiting for another transaction in the set.
 (a) Idle (b) Waiting (c) Deadlock (d) Ready
8. The deadlock in a set of transaction can be determined by
 (a) Read-only graph (b) Wait graph
 (c) Wait-for graph (d) All the above
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. Give the various types of attributes used in an ER 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) (i) Discuss the drawbacks of conventional file processing system. (8)
 (ii) Explain the advantages of database system approach. (8)

Or

- (b) Discuss the various notations used in ER model. Draw an ER model for hospital information system. (16)
17. (a) 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 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). (16)
- Or
- (b) (i) Discuss the strengths and weakness of the trigger mechanism. Compare triggers with other integrity constraints supported by SQL. (8)
- (ii) Outline tuple relational calculus. (8)
18. (a) Explain first normal form, second normal form and third normal form each with an example. (16)
- Or
- (b) Explain 1NF, 2NF, 3NF and BCNF with suitable example. (16)
19. (a) Explain transaction concepts with a simple transaction model. (16)
- Or
- (b) Explain various recovery techniques during failure of a transaction in detail along with system recovery. (16)
20. (a) Explain in detail about RAID. (16)
- Or
- (b) Explain B Trees and calculate the order p of a B-Tree stored on disk. (16)

