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Reg. No. : ☐☐☐☐☐☐☐☐☐☐

Question Paper Code: 94204

B.E./B.Tech. DEGREE EXAMINATION, MAY 2022

Fourth Semester

Computer science and Engineering

19UCS404- DATABASE SYSTEM CONCEPTS

(Regulations 2019)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. The term _____ is used to refer to a row.   CO1- U

   (a) Attribute   (b) Tuple   (c) Field   (d) Instance

2. In an ER diagram the symbol ____ represents an attribute.   CO1- U

   (a) Rectangle   (b) Ellipse

   (c) Diamond   (d) Arrow

3. Which of the following locks the item from change but not from read?   CO1- U

   (a) Implicit   (b) Explicit   (c) Exclusive   (d) Shared

4. What is the unique characteristic of RAID 6 (Choose one)?   CO1- U

   (a Distributed Parity   (b) Striping

   (c) Two independent distributed parity   (d) Mirroring

5. Which of the following are forms of malicious attack?   CO1-U

   (a) Theft of information   (b) Modification of data

   (c) Wiping of information   (d) All of the mentioned

PART – B (5 x 3= 15Marks)

6. Describe the three levels of views used in DBMS.   CO1- U

7. Define Entity, Attributes, Entity set, relationship with appropriate notations?   CO1- U

8. Differentiate between growing and shrinking phase in 2PL   CO1- U

9. What is hashing?   CO1- U

10. Define temporal database. CO1- U

PART – C (5 x 16= 80Marks)

11. (a) (i) Explain about the views of data. CO1-U (8)

(ii) Explain in detail about the database architecture with suitable diagram. CO1-U (8)

Or

(b) (i) Explain in detail about the purpose of database systems CO1-U (10)

(ii) Explain in detail about the various keys available. CO1-U (6)

12. (a) Define Normalization. Write down the various issues related to non-normalized Relation. Explain the process of Normalization upto 3NF in detail with suitable examples. CO1-U (16)

Or

(b) Develop an ER diagram for the given scenario. CO2-App (16)
In a botanical survey, an inventory is made of the Swedish flora, i.e., it is investigated where different plants grow. Plants are identified by their Latin names: Anemone nemorosa, Ranunculus ficaria, etc. The survey is made at different sites. A site is described by its name, its type, and its coordinates in the coordinate system. At a site, investigations are performed in 1 × 1 m squares. Each square also has coordinates, which are measured relative to the site coordinates. For each plant that occurs in a square, the degree of coverage (in percent) is recorded. Chemical analyses of different chemical properties are performed in some of the squares. Which analyses that are performed may vary, but common measurements are pH and the content of different heavy metals. The results of the measurements are given in different units: no unit, ppm, etc. The survey involves a lot of people. Each person has a person number, name, and address. Each square is investigated by one person.

13. (a) Define a transaction. Explain the ACID properties. Describe the states involved in a transaction. CO1-U (16)

Or

(b) Explain in detail about SQL Facilities to provide Concurrency and Recovery CO1-U (16)

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14. (a) Insert the following key values in B tree of order 3.   CO2- App   (16)
    1,2,3,4,5,6,7,8,9,10,11,12 and delete the key value 10,4 with proper
    explanation.

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

(b) Construct a B+ tree of order 3 with the key values   CO2- App   (16)
    10,20,30,40,50,60,70,80,90,100 and delete the key values 60 and
    20

15. (a) Discuss how temporal database is used in various applications   CO1- U   (16)

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

(b) Explain about authentication, authorization and various access   CO1- U   (16)
    control methods

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