Reg. No. :

Question Paper Code: U3F06

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

Third Semester

Computer science and Engineering

21UCD306- DATABASE SYSTEM DESIGN

(Common to IT,CSD & AI&DS)

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Explain the components of the storage manager.   CO1- U

2. Explain the different types of attributes with example.   CO1- U

3. State the differences between BCNF and 3NF.   CO1- U

4. Explain about Functional Dependency.   CO1- U

5. How does Pipelining improve query evaluation efficiency? Explain   CO1- U

6. What is meant by log based recovery?   CO1- U

7. What is indexing and what are the different kinds of indexing?   CO1- U

8. What are the properties of B trees?   CO1- U

9. What are the differences between SQL and NoSQL databases?   CO1- U

10. What are the features of NoSQL?   CO1- U

PART – B (5 x 16= 80Marks)

11. (a) With relevant examples discuss the various fundamental operations   CO1-U   (16)
         in Relational Algebra.

                                Or

    (b) (i) Explain various keys with examples   CO1-U   (8)
         (ii) Explain the disadvantages of using file processing systems.   CO1-U   (8)

12. (a) What is Normalization? Explain 1NF, 2NF, 3NF and BCNF with CO1-U (16)
suitable example.

Or

(b) Define a functional dependency. List and discuss the six inference CO1-U (16)
rules for functional dependencies. Give relevant examples.

13. (a) Describe the concept of serializability with suitable examples. CO1-U (16)

Or

(b) Explain Timestamp based concurrency control algorithm with an CO1-U (16)
example.

14. (a) With simple algorithms explain the concepts of Nested-loop join CO1-U (16)
and Block Nested-loop join.

Or

(b) Explain about B trees indexing concept with an example. CO1-U (16)

15. (a) Explain detail about the Cassandra NoSQL databases with neat CO1- U (16)
diagram.

Or

(b) Explain in detail about Mongodb architecture with CURD CO1- U (16)
operations.

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