**TDC Even Semester Exam., 2019**

COMPUTER SCIENCE

( Honours )

**( 4th Semester )**

Course No. : BCSH–403

**( Database Management System )**

*Full Marks* : 35
*Pass Marks* : 12

*Time* : 2 hours

*The figures in the margin indicate full marks for the questions*

Answer **five** questions, taking **one** from each Unit

UNIT—I

**1.** Discuss the main characteristics of the database approach and how it differs from traditional file system. 7

**2.** Define the term 'Database'. Mention the key features of the relational model. What are different levels of data abstraction? 2+3+2=7





UNIT—II

**3.** Explain the different operations of relational algebra. 7

**4.** *(a)* Define the following terms : 2+2+1=5

*(i)* Data manipulation language

*(ii)* View

*(iii)* Primary key

*(b)* Explain LIKE operation with an example. 2

UNIT—III

**5.** *(a)* Explain the 2NF and 3NF of relations with examples. 4

*(b)* What is the difference between Boyce-Codd Normal Form (BCNF) and 3NF? 3

**6.** Write short notes on the following : 2+2+3=7

*(a)* Functional dependency

*(b)* Partial dependency

*(c)* Armstrong's axioms

UNIT—IV

**7.** What is query processing? Explain the basic steps involved in processing a query. 2+5=7

**8.** What do you mean by indexing of files? Differentiate between dense and sparse indices. Discuss the technique of primary indexing in detail. 7

UNIT—V

**9.** *(a)* Draw a state diagram for a typical transaction process and discuss the states that a transaction goes through during execution. 5

*(b)* What are the approaches of deadlock prevention? 2

**10.** *(a)* Explain the concept of security. 3

*(b)* Write about the steps to recover from deadlock. 4

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