**18CS IT403**

**Hall Ticket Number:**

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| **II/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **July, 2021** | **Common to CSE & IT** | | |
| **Fourth Semester** | **Database Management Systems** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X10=40 Marks) |

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| 1. | a) | Define DBMS. | CO1 | |  |
|  | b) | What is data independence? | CO1 | |  |
|  | c) | What is conceptual data model? | CO1 | |  |
|  | d) | Define key. | CO2 | |  |
|  | e) | What are data manipulation Language Commands? | CO2 | |  |
|  | f) | Why the concurrency control is needed? | CO4 | |  |
|  | g) | What is Functional Dependency? | CO3 | |  |
|  | h) | Differentiate between B-tree and B+-tree | CO3 | |  |
|  | i) | What is meant by schedule? | CO4 | |  |
|  | j) | Define Serializability | CO4 | |  |
| **Unit - I** | | | | | |
| 2. | a) | Outline the advantages of Database management system approach over the traditional file processing systems. | CO1 | **5M** | |
|  | b) | Discuss the characteristics of DBMS. | CO1 | **5M** | |
|  |  | **(OR)** |  |  | |
| 3. | a) | Write brief notes on the following ER Model concepts:   1. Attributes 2. Relationship type, Relationship set. 3. Structural Constraints   Also show the symbols and notations used. | CO1 | **5M** | |
|  | b) | Write in detail about various types of relational data model constraints | CO1 | **5M** | |
| **Unit - II** | | | | | |
| 4. | a) | Explain Aggregate functions in SQL with suitable examples. | CO2 | **5M** | |
|  | b) | Consider the following database schema. Write appropriate SQL DDL statements to define the database along with suitable integrity constraints. Also, Write DML statements to insert, delete and update data into the database.  Employee   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Emp\_ID | Name | Address | Salary | Dept\_ID |   Department   |  |  |  | | --- | --- | --- | | Dept\_ID | Dept\_Name | Loc\_ID |   Location   |  |  |  |  | | --- | --- | --- | --- | | Loc\_ID | City | State | Country | | CO2 | **5M** | |
|  |  | **(OR)** |  |  | |
| 5. | a) | Discuss the Five clauses of SQL select statement. | CO2 | **5M** | |
|  | b) | Illustrate the basic set of relational algebra operators. | CO2 | **5M** | |
| **P.T.O.**  **18CS IT 403**  **Unit - III** | | | | | |
| 6 |  | What is normalization? Explain different types of normal forms from first normal form to BCNF with suitable example. | CO3 | **10M** | |
|  |  | **(OR)** |  |  | |
| 7. | a) | Explain in detail about single level ordered index. | CO3 | **5M** | |
|  | b) | Define Fully functional dependency. Explain how to find it with an example | CO3 | **5M** | |
| **Unit - IV** | | | | | |
| 8. | a) | Discuss the Two-Phase lock-based protocols | CO4 | **5M** | |
|  | b) | Explain Characterizing schedule based on Recoverability. | CO4 | **5M** | |
|  |  | **(OR)** |  |  | |
| 9. | a) | Discuss Time Stamp based protocols with examples | CO4 | **5M** | |
|  | b) | Define Transaction. Explain Desirable properties of Transactions. | CO4 | **5M** | |

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