**20CS403/20CB403/20DS403/20IT403**

**Hall Ticket Number:**

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| **II/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **July/August, 2023** | **Common to CB, CSE,DS & IT Branches** | | |
| **Fourth Semester** | **Database Management Systems** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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| 1 | a) | | List out the applications of DBMS. | CLO-1 | L1 | 1M |
|  | b) | | Define single valued and multivalued attributes. | CLO-2 | L2 | 1M |
|  | c) | | What are the disadvantages of file processing system? | CLO-1 | L1 | 1M |
|  | d) | | Give the levels of data abstraction. | CLO-2 | L2 | 1M |
|  | e) | | Give the syntax and example for CREATE command in SQL. | CLO-3 | L2 | 1M |
|  | f) | | Give an example for foreign key. | CLO-2 | L2 | 1M |
|  | g) | | What is Natural Join? Give an example. | CLO-3 | L1 | 1M |
|  | h) | | What is B+ tree? | CLO-5 | L1 | 1M |
|  | i) | | What are the properties of decomposition? | CLO-4 | L1 | 1M |
|  | j) | | What is Multi value dependency? Give an example | CLO-4 | L1 | 1M |
|  | k) | | What is the use of checkpoints in recoverability? | CLO-5 | L2 | 1M |
|  | l) | | When the transaction will be rolled back? | CLO-6 | L2 | 1M |
|  | m) | | What is a Time stamp? | CLO-6 | L1 | 1M |
|  | n) | | Define strict schedule. | CLO-5 | L2 | 1M |
| **Unit-I** | | | | | | |
| 2 | a) | Describe Three schema architecture and Data independence in detail | | CLO-1 | L2 | 7M |
|  | b) | Define DBMS. List Database users and their roles | | CLO-1 | L2 | 7M |
|  |  | **(OR)** | |  |  |  |
| 3 | a) | Discuss in detail about the main steps in the database design and clearly focus in detail about the goal of each step? In which steps is the ER model mainly used? | | CLO-2 | L3 | 7M |
|  | b) | Design an ER Model for College Admission System. | | CLO-2 | L3 | 7M |
| **Unit-II** | | | | | | |
| 4 | a) | Explain in detail about different types of attributes with diagrammatical representation in ER model. | | CLO-4 | L5 | 7M |
|  | b) | What is aggregate function? Explain all aggregate functions with the help of  example. | | CLO-3 | L2 | 7M |
| **(OR)** | | | | | | |
| 5 | a) | State various fundamental operations in the relational algebra and explain them with suitable examples. | | CLO-3 | L3 | 7M |
|  | b) | Explain in detail about different types of joint operations with example. | | CLO-2 | L2 | 7M |
| **Unit-III** | | | | | | |
| 6 | a) | List and explain various functional dependency mechanism. | | CLO-3 | L2 | 7M |
|  | b) | Given a relation with attributes R= (A,B,C,D,E,F,G,H) and following functional dependencies.  CH→G  A→BC  B→CFG  E→A  F→EG  State the strongest normal form that the relation R is in.  If R is not in BCNF, decompose it into a collection of BCNF relations. | | CLO-5 | L5 | 7M |
| **P.T.O**  **20CS403/20CB403/20DS403/20IT403**  **(OR)** | | | | | | |
| 7 | a) | Construct B tree to insert the following key values (order of the tree is 4)  10,50,,5,7,2,345,55,22,44,56,58,70,17,6,21 | | CLO-3 | L3 | 7M |
|  | b) | What is meant by normalization? Is it mandatory in a relational database design? Briefly explain normalization using functional dependencies, multi valued dependencies. | | CLO-5 | L2 | 7M |
| **Unit-IV** | | | | | | |
| 8 | a) | Discuss in detail about transaction processing mechanism | | CLO-2 | L3 | 7M |
|  | b) | What are the different types of database recovery techniques with example. | | CLO-3 | L3 | 7M |
| **(OR)** | | | | | | |
| 9 | a) | Draw a state diagram and discuss the typical states that a transaction goes through during execution. | | CLO-5 | L2 | 7M |
|  | b) | How to test the serializability of a schedule? Discuss with examples | | CLO-5 | L3 | 7M |

