VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) VI-Semester Main Examinations, May-2019

Introduction to Databases
(Open Elective-VI)

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Q.No.	Stem of the question	M	L	CO	PO
	Part-A (10 × 2 = 20 Marks)				
1.	List the applications of database Management system.	2	1	1	1
2.	What are the major components used in E-R diagram design?	2	1	1	1
3.	Define the terms Super key, Primary key, and Candidate Key in relational database.	2	1	2	1
4.	Write the syntaxes to Create and Alter a table.	2	2	2	1
5.	What is functional dependency? Give an example.	2	1	3	1
6.	Differentiate between Full Functional Dependency and Partial Functional Dependency.	2	2	3	1
7.	Draw the Transaction state diagram.	2	2	4	1
8.	Write the advantages of concurrent execution in transactions.	2	1	4	1
9.	Write an SQL query to find the second highest salary of an employee in an instructor relation.	2	1	2	1
10.	Define Schedule and write the Schedule for the following transactions.	2	2	4	1

```
        T1                           T2
   _____
        Read(A)
        A:=a-50;
        Write(A)
                                     Read(A)
                                     temp:=A*0.1;
                                     A:=A-temp;
                                     Write(A);
        Read(B)
        Write(B)
                                     Read(B)
```

Part-B (5 × 10 = 50 Marks)

11.a)	Explain the disadvantages of a file system over a database Management system.	5	2	1	2
b)	Draw an ER diagram for a BANK database schema with at least five entity types. Also specify primary key and structural constraints.	5	3	1	3
12.a)	Write the fundamental relational algebra operations with suitable examples.	6	2	2	2
b)	What are nested queries? Explain with the help of an example.	4	3	2	2

		M	L	CO	PO
13.a)	What are the steps involved in First Normal form, Second Normal form? Explain with an example.	4	3	3	2
b)	Compute the closure of the following set of functional dependencies for a relation schema R= (A,B,C,D,E,F,G,H). $F = \{ A \rightarrow B,\ A \rightarrow C,\ CG \rightarrow H,\ CG \rightarrow I,\ B \rightarrow H\}$	6	3	3	2
14.a)	Explain the ACID properties of a transaction with relevant examples.	6	2	4	2
b)	What is recoverability? Explain with an example.	4	3	4	2
15.a)	Write the functionalities of a Database Administrator in Database Management Systems.	4	2	1	2
b)	What is a join Expression? Write the different types of join expressions in SQL with examples.	6	3	2	2
16.a)	What is Boyce Codd Normal form (BCNF)? How it is related to other normal forms?	5	3	3	3
b)	How to implement Atomicity and Durability properties in Transactions.	5	2	4	2
17.	Answer any *two* of the following:				
a)	What is a weak entity, and how is it represented in an E-R diagram? Give an example.	5	3	1	2
b)	Write the features of good relational database design.	5	2	3	2
c)	Explain the different types of attributes that occur in an ER diagram model, with an example.	5	2	2	2

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	60
2	Knowledge on application and analysis (Level-3 & 4)	40
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	0

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