Code No. : 14625

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (I.T. : CBCS) IV-Semester Main Examinations, January-2021
Database Management Systems

Time: 2 hours   Max. Marks: 60

Note: Answer any NINE questions from Part-A and any THREE from Part-B

Part-A (9 × 2 = 18 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	List any two responsibilities of DBA.	2	1	1	1
2.	Illustrate with an example class hierarchy in ER Diagram.	2	2	1	1
3.	Distinguish between functions & procedures in advanced SQL.	2	2	2	1
4.	Write a Relational Algebra query to find all customers of the bank who have an account but not a loan. Customer(Customer-Name, Customer-City) Borrower(Customer-Name, Loan-Number) Depositor(Customer-Name, Account-Number)	2	3	2	2
5.	Write an SQL Query to find average account balance of those branches where average account balance is greater than Rs.1200. Branch(Branch-Name, Branch-City, Assets) Account(Account-Number, Branch-Name, Balance)	2	3	3	2
6.	Compare Nested and correlated queries with an examples.	2	2	3	1
7.	Compare Ordered Index & Hash Index	2	2	4	1
8.	Illustrate with an example how testing for Serializability is performed.	2	3	4	1
9.	List the steps involved in ARIES Recovery Algorithm.	2	3	5	1
10.	What is the need for Multiple Granularity?	2	1	5	2
11.	Compare Logical level Vs Physical level data independence.	2	2	1	1
12.	Distinguish between primary key and foreign key with an example.	2	2	2	1

Part-B (3 × 14 = 42 Marks)

13. a)	List out the drawbacks of File system over Database system	6	1	1	1
b)	What is the significance of ER Diagram? Construct an E-R Diagram for a car-insurance company that has a set of customers, each of whom owns one or more cars. Each car has associated with it zero to any number of recorded accidents.	8	3	1	2

			M	L	CO	PO
14.	a)	Demonstrate with an examples various types of JOIN operations.	6	2	2	1
	b)	Consider the following schema: **Suppliers** (*sid:* integer, *sname:* string, *address:* string) **Parts** (*pid:* integer, *pname:* string, *color:* string) **Catalog** (*sid:* integer, *pid:* integer, *cost:* real) **Write an expression in SQL for the following queries.** 1. Find the *name*s of suppliers who supply some red part. 2. Find the *sid*s of suppliers who supply some red or green part	8	3	2	2
15.	a)	Define Integrity Constraints. Consider the following relational database. **Employee** (person-name, street, city) **Works** (person-name, company-name, salary) **Company** (company-name, city) **Manages** (person-name, manager-name) Given an SQL DDL definition of this database. Identify referential-integrity constraints.	6	4	3	2
	b)	Justify with an example if a relation scheme is in BCNF Normal Form then it is also in 3NF.	8	3	3	2
16.	a)	Distinguish between Static Hash Index & Dynamic Hash Index with an example.	7	2	4	2
	b)	List ACID properties and illustrate its significance along with an example.	7	2	4	1
17.	a)	Build a schedule for 2PL and conservative 2PL in Lock based Concurrency Control.	6	2	5	2
	b)	Compare Deferred and Immediate modification techniques of the Log based recovery schemes.	8	1	5	1
18.	a)	Define the following terms – Entity Vs Entity Set, Relationship Vs Relationship set, with an example.	7	1	1	1
	b)	What are the SQL constructs to modify the structure of tables, Views, and to destroy the tables and views?	7	1	2	2
19.		Answer any *two* of the following:				
	a)	Write a program to create a Trigger for an Employee to check balance amount is less than 500.	7	3	3	2
	b)	Construct a B tree with following keys 2, 3, 5, 7, 9, 11, 13, 17, 19,21, 23, 29 where n=3.	7	3	4	2
	c)	Build Timestamp based protocols & Multiversion Schema.	7	2	5	1

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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