University of Mumbai

Program: **Cyber Security**
Curriculum Scheme: Rev2019
Examination: SE Semester :IV
Course Code: CSC403 Course Name: Database Management System

Time: 2 hour 30 minutes Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	The type of architectures of DBMS are
Option A:	Two tier architecture
Option B:	Single tier architecture
Option C:	Three tier architecture
Option D:	Both A and C
2.	The _____ operation, denoted by -, allows us to find tuples that are in one relation but are not in another.
Option A:	Union
Option B:	Set difference
Option C:	Difference
Option D:	Intersection
3.	Which aggregate function is used to find the total no. of records in table?
Option A:	Sum
Option B:	Total
Option C:	Average
Option D:	Count
4.	The students are having two email_ids as personal and college email_id so email_id is which type of attribute
Option A:	Composite
Option B:	Derived
Option C:	Multivalued
Option D:	simple
5.	Which key enforces referential integrity?
Option A:	Primary key
Option B:	Candidate key
Option C:	Foreign key
Option D:	Unique key
6.	Anomalies are avoided by splitting the offending relation into multiple relations, is also known as
Option A:	Decomposition

Option B:	Precomposition
Option C:	Composition
Option D:	None of these
7.	The execution sequences in concurrency control are termed as _____
Option A:	Serials
Option B:	Schedules
Option C:	Organizations
Option D:	Time tables
8.	The scheme that controls the interaction between executing transactions is called as ____
Option A:	Concurrency control scheme
Option B:	Multiprogramming scheme
Option C:	Serialization scheme
Option D:	Schedule scheme
9.	In order to undo the work of transaction after last commit which one should be used ?
Option A:	View
Option B:	Rollback
Option C:	Commit
Option D:	Flashback
10.	Which of the following SQL command is used for removing (or deleting) a relation form the database?
Option A:	Drop
Option B:	Delete
Option C:	Rollback
Option D:	Truncate

Q2	**Solve any Two Questions out of Three 10 marks each**
A	Draw an ER Diagram and convert it into relational model for a Company, which has several Employees working on different types of projects. Several Employees are working for one Department every Department has a Manager. Several Employees are supervised by one Employee.
B	Explain type of Joins with example.
C	What is normalization? Explain 1NF, 2NF and 3NF with suitable example.

Q3.	**Solve any Four Questions out of Six 5 marks each**
A	Explain ACID properties of transaction.
B	Differentiate between file system and database system with example.
C	Explain Generalization and Specialization.
D	Discuss the role of Database Administrator.
E	Write a note on Aggregate Functions in SQL.
F	Write a short note on Deadlocks.

Q4.	
A	**Solve any Two** **5 marks each**
i.	Explain 2 phase locking protocol
ii.	Explain transaction state diagram.
iii.	Write a note on Log based Recovery.
B	**Solve any One** **10 marks each**
i.	Explain the overall architecture of DBMS in detail.
ii.	Write SQL queries for the given database. Employee(eid, emp-name, street, city) Works(eid, cid, salary) Company(cid, comp-name, city) Manager(eid, manager-name) (i) Find the names of all the employees having 'A' as first letter in their names. (ii) Display the annual salary of all the employees. (iii) Find the name, street and city of all employees who work for "Amazon" and earn more than 30,000. (iv) Give total number of employees.