Program: **Information Technology**
Curriculum Scheme: Rev 2016
Examination: SE Semester III
Course Code: ITC303 and Course Name:DBMS

Time: 2 hour   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.	Consider the relations r1(P, Q, R) and r2(R, S, T) with primary keys P and R respectively. The relation r1 contains 2000 tuples and r2 contains 2500 tuples. The maximum size of the join r1 ⋈ r2 is
Option A:	2000
Option B:	2500
Option C:	2400
Option D:	4500
2.	Given the basic ER and relational models, which of the following is INCORRECT?
Option A:	An attribute of an entity can have more than one value
Option B:	An attribute of an entity can be composite
Option C:	In a row of a relational table, an attribute can have more than one value
Option D:	In a row of a relational table, an attribute can have exactly one value or a NULL value
3.	A relational database contains two tables student and department in which the student table has columns roll_no, name and dept_id, and department table has columns dept_id and dept_name. The following insert statements were executed successfully to populate the empty tables: Insert into department values (1, 'Mathematics') Insert into department values (2, 'Physics') Insert into student values (l, 'Navin', 1) Insert into student values (2, 'Mukesh', 2) Insert into student values (3, 'Gita', 1) How many rows and columns will be retrieved by the SQL statement? Select * from student, department;
Option A:	0 row and 4 columns
Option B:	3 row and 4 columns
Option C:	3 row and 5 columns
Option D:	6 row and 5 columns
4.	DBMS is a collection of ………….. that enables users to create and maintain a database.
Option A:	Keys
Option B:	Translator
Option C:	Program
Option D:	Language

5.	A domain is atomic if elements of the domain are considered to be _____ units.
Option A:	Different
Option B:	Indivisible
Option C:	Constant
Option D:	Divisible
6.	If the employee is the entity type then Michael, smith is the entity_____?
Option A:	Characteristics
Option B:	Field
Option C:	Identifier
Option D:	Instance
7.	An entity type whose existence depends on another entity type is called _____ entity?
Option A:	Strong
Option B:	Weak
Option C:	Dependent
Option D:	variant
8.	With SQL, how do you select all the records from a table named "Employees" where the value of the column "First_Name" is "John"?
Option A:	Select [all] from Employees where First_name<>John
Option B:	Select [all] from Employees where First_name like John
Option C:	Select * from Employees where First_name<>John
Option D:	Select * from Employees where First_Name='John'
9.	How can you change "Hansen" into "Nilsen" in the "L_Name" column in the Employees Person table?
Option A:	Update Employees set L_Name='Hansen' where L_Name='Nilsen'
Option B:	Update Employees set L_Name='Nilsen' where L_Name='Hansen'
Option C:	Modify Employees set L_Name='Hansen' where L_Name='Nilsen'
Option D:	Modify Employees set L_Name='Nilsen where L_Name='Hansen'
10.	If the database modifications occur while the transaction is still active, the transaction is said to use the _____ modification technique.
Option A:	Deferred
Option B:	Immediate
Option C:	More than one of the mentioned
Option D:	modify

Q2	Attempt any 2 out of 3 Questions 10 marks each
A	Define Generalization and Specialization and Draw EER diagram on University Database
B	Draw and Explain Database architecture in detail
C	Draw an ER diagram for the following case study. Suppose you are given the following requirements for a simple database for the National Hockey League (NHL): ● the NHL has many teams, ● each team has a name, a city, a coach, a captain, and a set of players, ● each player belongs to only one team, ● each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records, a team captain is also a player, a game is played between two teams (referred to as host_team and guest_team) and has a date (such as May 11th, 1999) and a score (such as 4 to 2). Construct a clean and concise ER diagram for the NHL database.

Q3.	Attempt any 2 out of 3 Questions 10 marks each
A	Explain two phase locking protocol (2PL) in detail.
B	Define Normalization and explain 1NF,2NF with examples.
C	Explain the view in SQL with syntax and example.

Q4.	Attempt any 2 out of 3 Questions 10 marks each
A	Explain transaction state diagram? Explain ACID properties?
B	Explain Deadlock technique with example and deadlock prevention and detection technique.

C	Consider the following schema for the college Library.
	     Student (Roll_no, Name, Branch)
	     Book (ISBN, Title, Author, Publisher)
	     Issue (Roll_no, ISBN, Date_of_issue)
	      Write SQL queries for the following statements:
	i) List Roll number and Name of all students of the Computer and IT Branch.
	ii) Find the name of students who have issued a book published by 'XYZ publisher'
	iii) List title of books and their author issued by student 'Alex'