MANIPAL INSTITUTE OF TECHNOLOGY
BENGALURU
(A constituent unit of MAHE, Manipal)

QUIZ - IV SEMESTER (CSE/ CSE-Artificial Intelligence/CSE- Cyber security)

Database Systems (IT_2253/CSE_2251)

Max Marks: 10 **Duration: 30 minutes**

05/10

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Note: a. Answer All the questions
b. Overwriting on the answers is not accepted.

Consider the given tables and write the SQL query for the given questions from 1 to 2

AUTHOR_ID	AUTHOR_NAME
1	Jane Doe
2	John Smith

authors table

BOOK_ID	TITLE	AUTHOR_ID	PUBLICATION_YEAR
101	The Book of SQL	1	2020
102	Database Design 101	2	2018
103	Advanced SQL Techniques	1	2022
105	Null Chronicles	2	2021
104	NULL BOOK	1	2023
106	Null and Void	-	2021

books table

1. using the UNION set operation write SQL query to combine the distinct titles of books written by 'Jane Doe' and 'John Smith'

Answer : SELECT * FROM authors table union

2. Query to Update author_id in books table to 2 where it is NULL

Answer : UPDATE SELECT * FROM BOOKS TABLE, WHERE AUTHOR_ID UPDATE FROM BOOKS TABLE WHERE = " " UPDATE AUTHOR_ID = "name-to update" ; OR AUTHOR ID =

3. Given a relation Student(Roll, Name, Class, Fees, Team) with the following tuples:

Roll	Name	Department	Fees	Team
1	Bikash	CSE	22000	A
2	Josh	CSE	34000	A
3	Kevin	ECE	36000	C
4	Ben	ECE	56000	D

Select all the students of department ECE whose fees is greater than equal to 10000 and belongs to Team other than A.

a) σ Fees >= 10000(σTeam != 'A' (Student))
b) σ Fees >= 10000(σTeam = 'A' (Student))
c) π Fees >= 10000(π Team = 'A' (Student))
d) π Fees >= 10000(π Team != 'A' (Student))

4. Which of the following statements are true:
I. Each superkey is a superset of some candidate key.
II. Each primary key is also a candidate key, but there may be candidate keys that are not primary keys.

a) only I is true
b) only II is true
c) both I and II are true
d) neither I nor II are true

5. The relation R(a,b) may have duplicate tuples. Which of the following queries has a result that is guaranteed not to have duplicates, regardless of what tuples R contains?

I) SELECT a FROM R WHERE a = 1
II) SELECT MAX(b) FROM R GROUP BY a
III) SELECT a, b FROM R GROUP BY a, b
IV) SELECT a FROM R WHERE a NOT IN (SELECT a FROM R)

a) III) and IV) b) I) and II) c) III only d) I and III

6. Which SQL statement will not generate any error message?

a)SELECT * FROM EMP WHERE EMPNO LIKE (1,2,3,4);
b)SELECT * FROM EMP WHERE SAL BETWEEN 3000 TO 15000;
c)SELECT * FROM EMP WHERE COMM IS NOT NULL;
d)All of the above

7. Given the relations employee (name, salary, deptno) and department (deptno, deptname, address) Which of the following queries cannot be expressed using the basic relational algebra operations (U, -, x, π, σ, p)?

a) Department address for every employees
b) Employees name whose name is same as department name
c) The sum of all employee's salary
d) All employees of the given department

8. Consider the following relational schema:

Suppliers(sid:integer, sname:string, city:string, street:string)
Parts(pid:integer, pname:string, color:string)
Catalog(sid:integer, pid:integer, cost:real)
Consider the following relational query on the above database:

```
SELECT S.sname  FROM Suppliers S
WHERE S.sid NOT IN (SELECT C.sid FROM Catalog C
 WHERE C.pid NOT IN (SELECT P.pid  FROM Parts P  WHERE P.color<> 'blue'))
```

Assume that relations corresponding to the above schema are not empty. Which one of the following is the correct interpretation of the above query?

a) Find the names of all suppliers who have supplied a non-blue part.
b) Find the names of all suppliers who have not supplied a non-blue part.
c) Find the names of all suppliers who have supplied only blue parts.
d) Find the names of all suppliers who have not supplied only blue parts.

9. Let R1 (A, B, C) and R2 (D, E) be two relation schema, where the primary keys are shown underlined, and let C be a foreign key in R1 referring to R2. Suppose there is no violation of the above referential integrity constraint in the corresponding relation instances r1 and r2. Which one of the following relational algebra expressions would necessarily produce an empty relation?

a) $\Pi_D(r2) - \Pi_C(r1)$ b) $\Pi_C(r1) - \Pi_D(r2)$ c) $\Pi_C(r1 \bowtie C = D r2)$
d)None of the above

10. There are 2 relations: TEST2024 (exam_date, exam_center, branch_id) and candidate (rollno, name, bid, refno, choice_of_date). In a candidate relation, bid is the foreign key which refers to the key of TEST2024. Suppose an insertion into candidate relation and deletion from TEST2024 relation is done, then which of the following statement is true?

a) Insertion into candidate relation can cause inconsistency
b) Deletion from TEST2024 relation can cause inconsistency
c) Both operations can cause inconsistency of data
d) None of them can cause inconsistency of data