

Quiz 6 Student ID: \_\_\_\_\_ Name: \_\_\_\_\_ Score (out of 7): \_\_\_\_\_

Consider the following relation: **Flights**(fno INT, distance INT, price REAL)

- Write a SQL query to find the price and distance of the cheapest flight, not less than 100 dollars, for each distance with at least 2 such flights, sorted by distance, in the increasing order.

```
SELECT F.distance, min(F.price) as min_price
FROM Flights F
WHERE F.price >= 100
GROUP BY F.distance
HAVING COUNT(*) >= 2
ORDER BY F.distance ASC;
```

- Given the below table, what is the result of your query from question 1.

fno	distance	price
1	500	40
2	500	50
3	500	50
4	200	200
5	50	150
6	50	150
7	40	250
8	40	350

distance	min_price
40	250
50	150

- Write a SQL query to authorize a user called “Lilith” to delete records from a **Flights** table and also let her authorize other database users to delete records from the table as well.

```
GRANT DELETE ON Flights TO Lilith WITH GRANT OPTION;
```

- Suppose that a user “Cedric” receives an authorization from, but not only from, the user “Lilith” to delete records from **Flights**. If the DELETE privilege is revoked only from Lilith, can Cedric continue to delete records from Flights? (a) YES (b) NO

5. Create a view of the Flights table, with those having a price more than 40 dollars and less than 200 dollars and not equal to 150 dollars. Include the flight number, origin, and destination. (You may assume origin and destination columns are also given with varchar(20) datatype).

```
CREATE VIEW FlightsView(fno,origin,destination) AS  
SELECT fno,origin,destination  
FROM Flights  
WHERE price>40 AND price<200 AND price <>150
```

6. Suppose we have a table Dept(did, budget, empCount). We also have a view

```
CREATE VIEW BigDept(did, budget, empCount) AS  
SELECT * FROM Dept where empCount > 100;
```

We want to make the view's content always consistent with the content of the base table. Write a row-level trigger to enforce this consistency for INSERT statements into the **Dept** table.

```
CREATE TRIGGER DeptInsert  
AFTER INSERT ON Dept  
FOR EACH ROW  
BEGIN  
    IF NEW.empCount > 100 THEN  
        INSERT INTO BigDept  
        VALUES (NEW.did, NEW.budget, NEW.empCount)  
    END IF  
END;
```

7. Consider a relational table R(A, B, C, D, E, F) with a set of functional dependencies: A->B, B->C, CD->E, and AD->F. Is AD a candidate key? Why?

**Yes, since it determines R and all its attributes, ie, if a given value of AD could uniquely determine a record.**

**[ Here is a possible derivation:**

- (i) From A->B and B->C, we have A->C (transitivity)**
- (ii) From A->C, we have AD->CD (augmentation)**
- (iii) From AD->CD and CD->E, we have AD->E (transitivity)**
- (iv) From AD->E and AD->F we have AD->EF (union) ]**