Quiz #2 - Elementary SQL (worth 2.5 marks and each question is worth equal marks)

1.

In answering the question, assume the following database schema:

```
create table R (a integer, b varchar(10), c numeric(4,2));
create table S (b varchar(10), d integer);
```

and assume the following data:

```
db=# select * from R;
 a |   b    |  c
---+--------+------
 1 | first  | 3.14
 2 | second | 2.18
 3 | third  | 1.50
 4 | fourth | 3.14

db=# select * from S;
   b   | d
-------+---
 first | 2
 third | 3
 fifth | 4
```

Consider the query:

```
(select b from R) except (select b from S);
```

Which of the following gives the results of this query?

○	An empty table
◉	The table: ``` b -------- fourth second```

The table:

```
      b
  -------
   first
   third
   fifth
```

The table:

```
      b
  --------
   first
   second
   third
   fourth
```

None of the other answers is correct.

The table:

```
      b
  -------
   fifth
```

2.

In answering the question, assume the following database schema:

```
create table R (a integer, b varchar(10), c numeric(4,2));
create table S (b varchar(10), d integer);
```

and assume the following data:

```
db=# select * from R;
 a |   b    |  c
---+--------+------
 1 | first  | 3.14
 2 | second | 2.18
 3 | third  | 1.50
 4 | fourth | 3.14

db=# select * from S;
   b   | d
-------+---
 first | 2
 third | 3
 fifth | 4
```

How many tuples are there in the result of the following query:

```
select * from R, S;
```

○	0
○	2
○	3
○	4
◉	12
○	16
○	None of the other answers is correct.

3.

In answering the question, assume the following database schema:

```
create table R (a integer, b varchar(10), c numeric(4,2));
create table S (b varchar(10), d integer);
```

and assume the following data:

```
db=# select * from R;
 a |   b    |  c
---+--------+------
 1 | first  | 3.14
 2 | second | 2.18
 3 | third  | 1.50
 4 | fourth | 3.14

db=# select * from S;
   b   | d
-------+---
 first | 2
 third | 3
 fifth | 4
```

Which of the following SQL statements produces the same result as:

```
select * from R natural join S;
```

In answering this question, you should ignore the order of tuples in the result table and also ignore the order of attributes within each tuple.

○   select R.*, S.* from R, S where R.b=S.b and R.a=S.d;

○   select R.*, S.d from R join S on (R.a=S.d);

◉   select R.a, R.b, R.c, S.d from R join S on (R.b=S.b);

○   select R.b, S.* from R join S on (R.b=S.b);

○   select R.a, R.b, S.d from R, S where R.b = S.b;

○   None of the other answers is correct.

4.

In answering the question, assume the following database schema:

```
create table R (a integer, b varchar(10), c numeric(4,2));
create table S (b varchar(10), d integer);
```

and assume the following data:

```
db=# select * from R;
 a |   b    |  c
---+--------+------
 1 | first  | 3.14
 2 | second | 2.18
 3 | third  | 1.50
 4 | fourth | 3.14

db=# select * from S;
   b   | d
-------+---
 first | 2
 third | 3
 fifth | 4
```

Consider the query:

```
select * from R left outer join S on (R.b=S.b);
```

Which of the following represents the result of this query?

| ○ | An empty table |

| ○ | The table |

```
 a |   b   |  c   |   b   | d
---+-------+------+-------+---
 1 | first | 3.14 | first | 2
 3 | third | 1.50 | third | 3
```

| ○ | The table |

```
 a |   b   |  c   |   b   | d
---+-------+------+-------+---
   |       |      | fifth | 4
 1 | first | 3.14 | first | 2
 3 | third | 1.50 | third | 3
```

The table

```
a |   b    |  c   |   b   | d
---+--------+------+-------+---
1 | first  | 3.14 | first | 2
2 | second | 2.18 |       |
3 | third  | 1.50 | third | 3
4 | fourth | 3.14 |       |
```

The table

```
a |   b    |  c   |   b   | d
---+--------+------+-------+---
  |        |      | fifth | 4
1 | first  | 3.14 | first | 2
4 | fourth | 3.14 |       |
2 | second | 2.18 |       |
3 | third  | 1.50 | third | 3
```