1.

* Field – attribute – column
* Tuple – row – record
* Table – relation - entity
* Relationship

2.

1. We can have only one primary key in a table
2. A primary key can be a combination of more than one column
3. A primary key uniquely identifies each row in a table

3. 6 tuples. For example, one of them is (1, John, B, Smith, 123456789, 1965-01-09, M, 30000).

4. No, relation will stay the same no matter the order changes horizontally(row-wise) or vertically(column-wise)

5. Super Key is any set of attributes/columns that guarantee the uniqueness of the row in the whole table. We get key when we add one more restriction on Super Key – Key is a Super Key with minimum number of attributes needed.

E. g. Fname and Ssn combined make a super key – they are enough to uniquely identify the row. However, this couple is not a key, because only EID or only SSN are already enough to uniquely identify the row. This means that EID and SSN are keys.

6. EID – Integer (NUMBER(p, 0)), Fname – String (VARCHAR2(50)), Minit – Char/String (CHAR(1)), Lname – String (VARCHAR2 (50)), Ssn – can store both as Integer or String actually (only constraint is it needs to be 9 digit number), Bdate – Date Format/String (DATE), Sex – Char/String (CHAR(1)), Salary – Integer (NUMBER(p, 0))

7. As mentioned earlier, EID and SSN are keys. So they are basically also candidate keys. The assumptions are as made earlier – they uniquely identify each row, as EID is auto-incremented value we give to each employee and SSN is defined that way in the US (i.e. we assume that SSN numbers are different for each US citizen and that everyone has one). Others cannot be considered as candidate keys, because they are not even keys.

8. We usually should prefer to take EID over SSN as the primary key.

9. I would keep customerID foreign key in the order table which will show who made the order. Thus if we want to know what orders the customer made we go to orders table and select all the rows where customerID is our user’s id.

10. No, because if a column is NULL-able this means that the value is allowed to be not defined. This means that technically it can happen that at least two rows may have NULL value for that concrete column thus violating unique constraint. E. g. Let’s say 2 employees didn’t specify their SSN number during registration (assuming it’s not mandatory for registration).