

**1. Chapter 5 (focus primarily on Sections 5.1–5.2)**

**a. Who invented the relational data model? When and where did they do their work?**

Edgar F Codd invented the relational model and worked for IBM during the 60's. The relational model was officially described in 1969.

**b. Explain the following terms:**

**i. *Relation***

The connection between tuples of data that all have the same type.

**ii. *Attribute***

An ordered pair of name and type. The value of an attribute must be valid according to its type

**iii. *Domain***

The entire range of valid values for a particular data type. E.g. Integers cannot be fractions, thus fractions are outside the domain of integers.

**iv. *n-tuple***

A group of values of the same type n items long. A two-tuple would contain two values of the same type- An unordered collection of attribute values.

**v. *NULL value***

An unknown or missing value that is not applicable to the set of data. Not True or False, just not present.

**vi. *primary, foreign, candidate and super keys***

Primary values are the defining value for a relation. They are the main value that defines each index in the relation.

Foreign keys are a value that point to another relation and are the connecting factor to other relations, if the two are relevant.

Super keys hold all relations assigned to a particular value.

**vii. *referenced and referencing records***

Records that are pointed to by another relation's foreign key.

**c. Are tuples in a relation ordered? How about attribute values in a tuple? Explain why or why not.**

Tuples are not necessarily ordered, but attribute values can be. The tuples all technically need to be in the same order as each other in order for the relation to be meaningful; The attributes can probably be reordered without the relation technically being 'different.'

**d. Can attributes have multiple values in a single n-tuple? Why or why not?**

Attributes cannot have multiple values in a single n-tuple. If they do, the n tuple becomes invalid as it is larger than the rest of the attributes of the relation.

