Primary Key

CustomerID ProductID OrderID OrderID, ProductID PaymentID

Foreign Key

X X CustomerID OrderID,ProductID OrderID

Candidate Keys

Email

Explain data integrity of DBMS

Role of integrity constraints: Primary and Foreign

Primary Key: are not null and unique. No tuple can have null value for primary key attribute. and no two tuple can have the same value for the primary key attribute

Foreign Key: foreign keys specifies that for any tuple in the relation correspond to the values of the primary key attributes of some tuple in the relation S. e.g. `foreign key (dept_name) references department`

Define Tuple, Relation, Attributes, Null Values, DB Schema, Instance

Tuple: In mathematical terminology, tuple is simply a sequence or list of values **Relation:** In relational model,Relation is a table Atrributes: In RDBMS, Attributes are the columns in a table/relation. **Null Values:** It signifies that the value is unknown or doesn't exist. **DB Schema:** Logical design of the DB. Schema doesn't generally change. **DB Instance:** Snapshot of the DB at a given instant time. **Super Key:** Set of one or more Attributes that, uniquely identifies a tuple in a relation. **Candidate Keys:** Minimal super keys are called the Candidate keys.

Schema Definition

Table Creation

```sql
create table department (
dept_name varchar(20),
building varchar(15),
budget   numeric(12,2),
primary key (dept_name)
);
-- Foreign key relation
create table course
(course id varchar (7),
title varchar (50),
dept_name varchar (20),
credits numeric (2,0),
primary key (course id),
foreign key (dept name) references department);
```

```sql
-- Example: All the keys are from other table
create table teaches
(ID varchar (5),
course_id varchar (8),
sec_id varchar (8),
semester varchar (6),
year numeric (4,0),
primary key (ID, course id, sec id, semester, year),
foreign key (course id, sec id, semester, year) references section,
foreign key (ID) references instructor);
```

Alter Table

```sql
alter table student add column total_credit numeric(5,2);
alter table student drop column cgpa
```