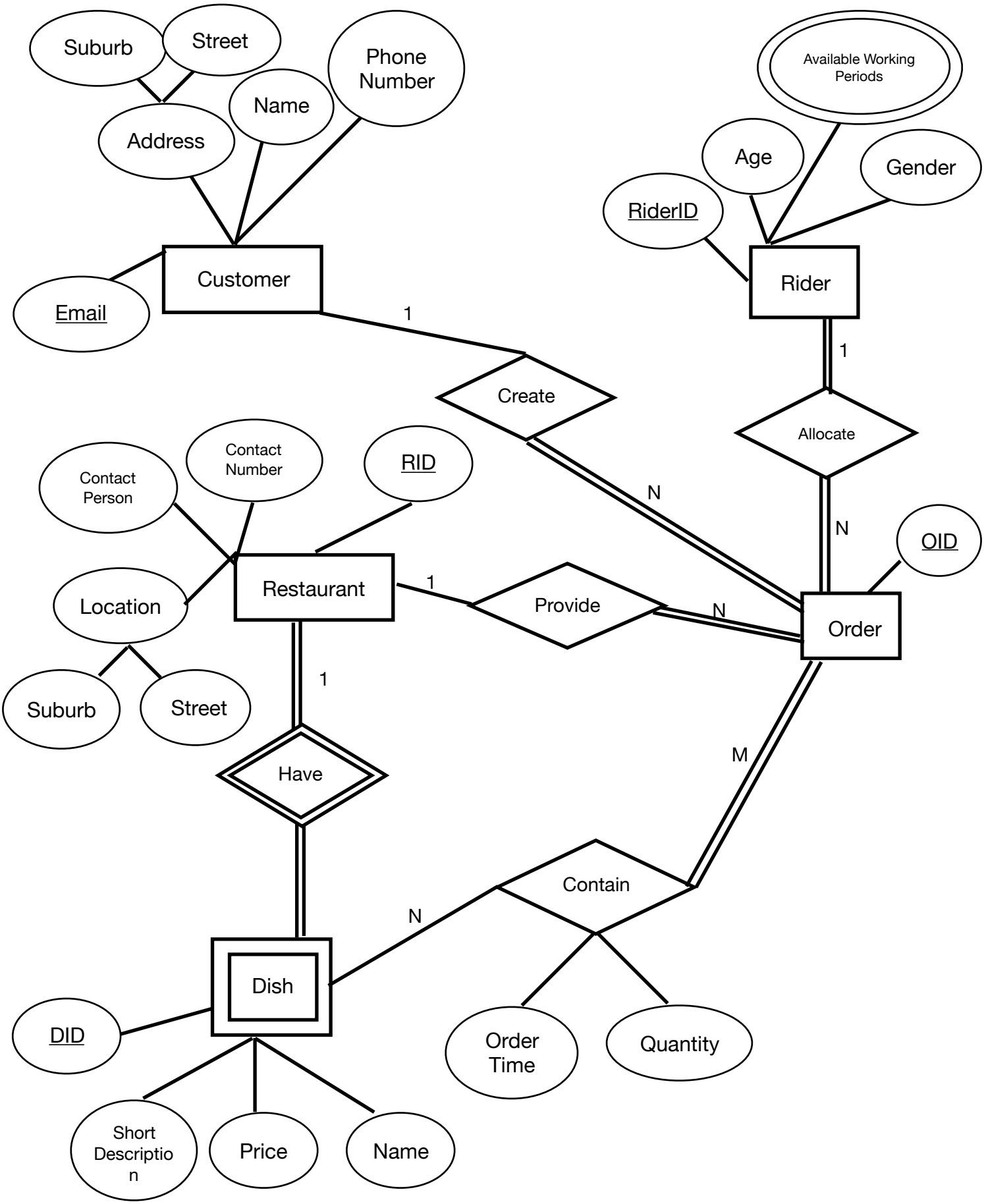
Z5235242 Tong ZHANG

Question 1:



Question 2:

Customer

C_Email	Name	Phone Number	Suburb	Street

Rider

RiderID	Age	Gender	Available Working Periods

Restaurant

R_ID	Contact Person	Contact Number	Suburb	Street

Dish

D_ID	R_ID	Name	Price	Short Description

Order

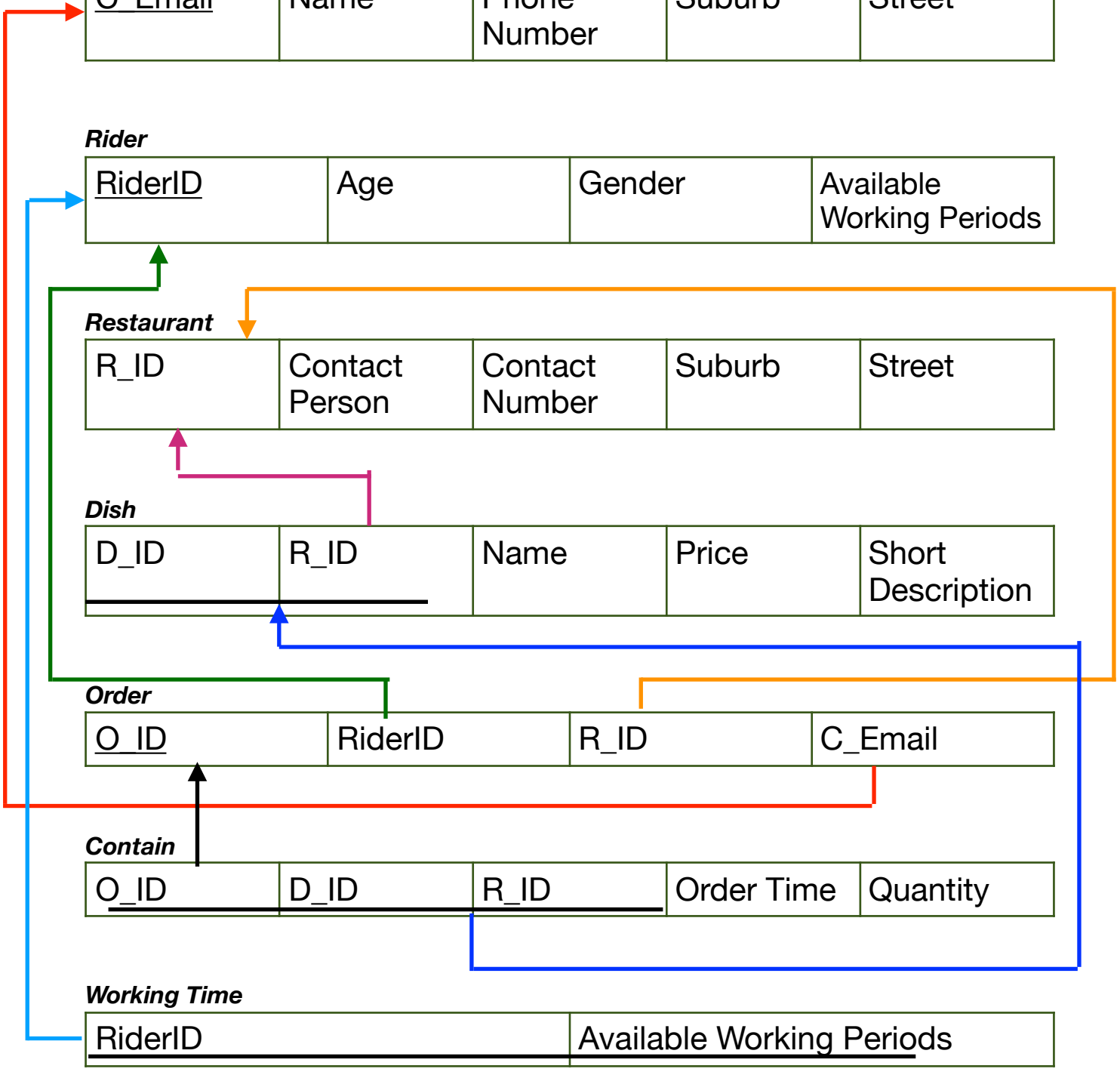
O_ID	RiderID	R_ID	C_Email

Contain

O_ID	D_ID	R_ID	Order Time	Quantity

Working Time

RiderID	Available Working Periods



Question3:

1.

$\Pi_{\{title\}}(\sigma_{<genre='pop'>}(GenerofSong) \bowtie \sigma_{<role='composer'>}(SongCreating) \bowtie \sigma_{<name='TaylorSwift'>}(Artist) \bowtie Song)$

2.

$\Pi_{\{title\}}((\sigma_{<name='Ed\ Sheeran'\ OR\ name='TaylorSwift'>}(Artist) \bowtie (\sigma_{<role='composor'>}(SongCreating)) \bowtie Song)$

3.

$\Pi_{\{name\}}(\sigma_{<gender='female'>}(Artist) \bowtie JoinIn \bowtie \sigma_{<Name='Universal\ Music\ Group'>}(Company) \bowtie SongCreating \bowtie \sigma_{<genre='pop'>}(GenreOfSong)) - \Pi_{\{name\}}(\sigma_{<gender='female'>}(Artist) \bowtie JoinIn \bowtie \sigma_{<Name='Universal\ Music\ Group'>}(Company) \bowtie SongCreating \bowtie \sigma_{<genre='hip\text{-}hop'>}(GenreOfSong))$

4.

$\Pi_{\{name\}}(\Pi_{\{aID\}}(((\Pi_{\{aID,genre\}}(GenreOfSong \bowtie SongCreating \bowtie Artist) \div \Pi_{\{genre\}}(GenreOfSong) \bowtie SongCreating) \bowtie \Pi_{\{sID\}}(\sigma_{<name='TaylorSwift'>}(Artist) \bowtie SongCreating)) \bowtie Artist) - \Pi_{\{name\}}(\sigma_{<name='TaylorSwift'>}(Artist))$