

①

Ch 3

Data Modeling Using ER

Entity:-

ای شخص یا چیز
اور ای شیے کو جو
مختلف ہیں
Employee, office, Task, conference

Attributes:-

شخص کی خصوصیات
Entity کے

Employee: Name, NID, address, gender
Birth data

Relationships:-

relates two or more distinct
entities with a specific
meaning

Employee Ahmad works on the
product Iphone Project

employee Ali manages the HR
Department.

Types of Attributes

Simple
 gender = Male
 NID = 972123567

Composite

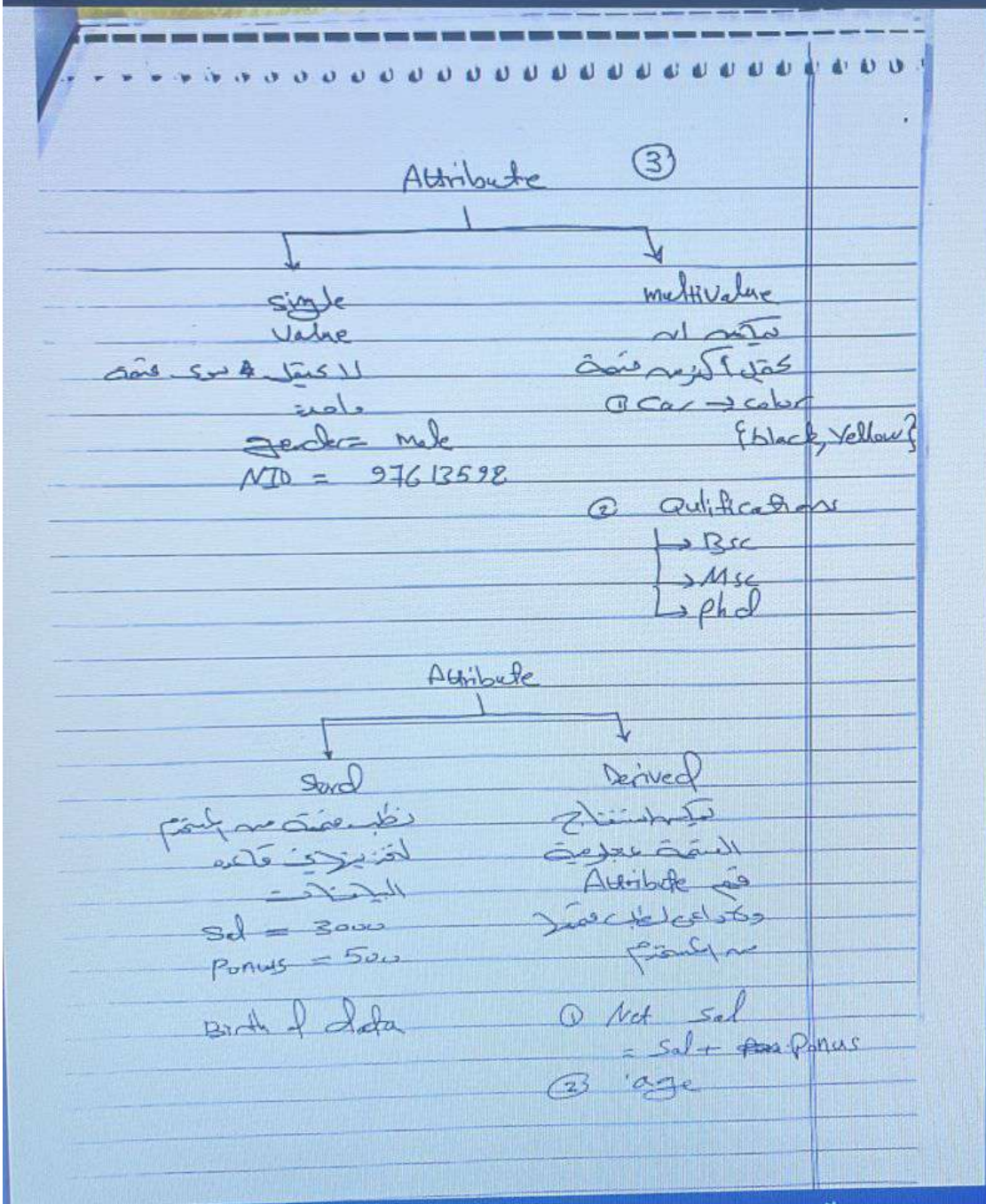
① Address
 building No
 street Name
 city
 country

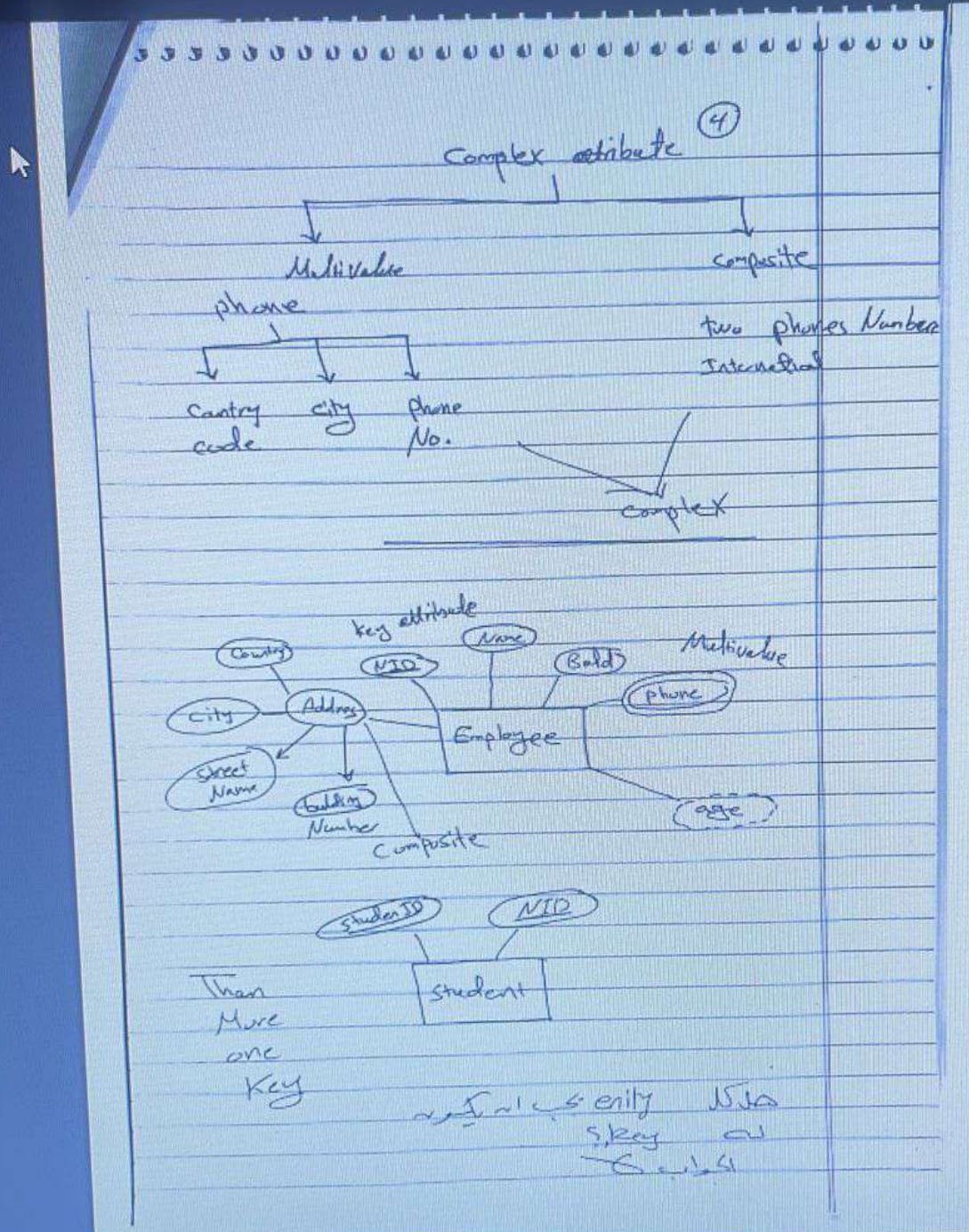
② Phone
 country code
 city code
 Phone No.



Rain tomorrow







Rain tomorrow

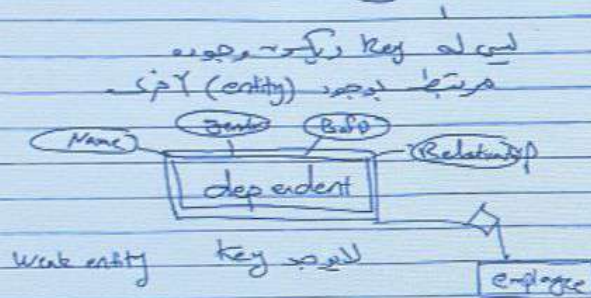
Key along weak entity

(5)



Weak Entity: Entity without key attribute

its existence is linked to other entity



Rain tomorrow



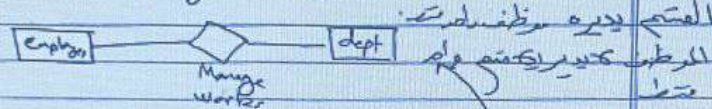
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Entity Relationship

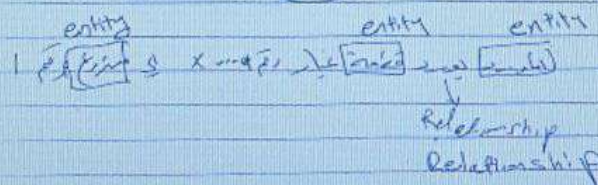
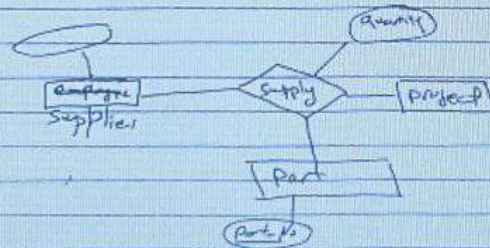
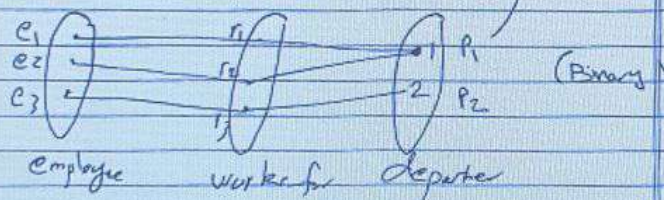
entities ~~on~~ ~~small~~

Degree of Relationship

1. Binary ~~is~~ ~~is~~



2. Ternary ~~is~~ ~~is~~ Ternary

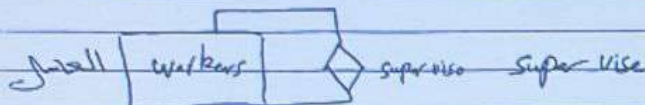


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Recursive Relationship

Worker

ویرا کارکنان

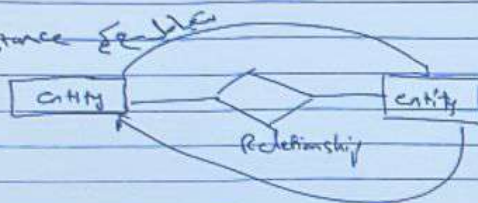


کارت

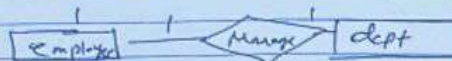
Cardinality Relationship

کارت و رابطه

Instance



1- ONE to ONE



The department is Managed by only one employee

فردی که فقط یک
کارت و رابطه

The employee only manages one department

کارت و رابطه



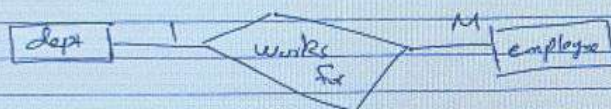
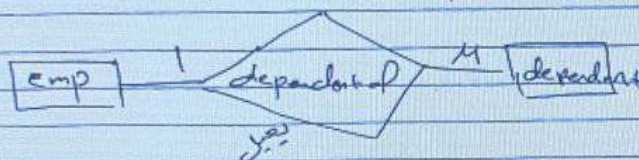
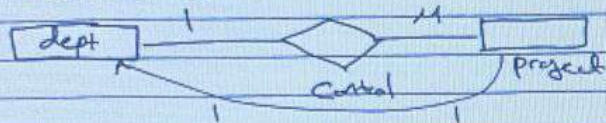
Rain tomorrow

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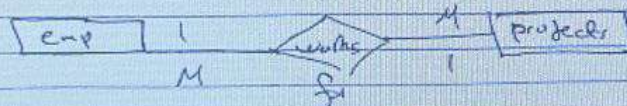
one to Many (8)

The department ^{Control} manages Many projects
 - Many projects are ^{Controlled} managed

- The project is Managed by one department
 - The project is ^{Controlled} managed by one department



Many to Many



- The projects consists of many employees

- An employee can works for than one project



Cold weather



Entity participation Relationship

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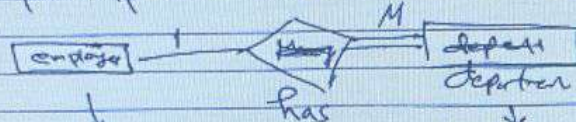
entity (instance) N to

entity (instance) N to

entity (instance) N to

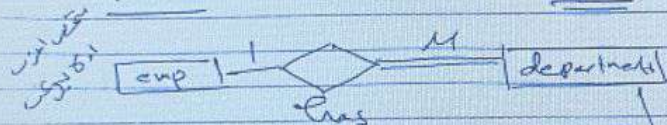
participation

participation Total



employee N to
N to
partial

department N to
N to
total



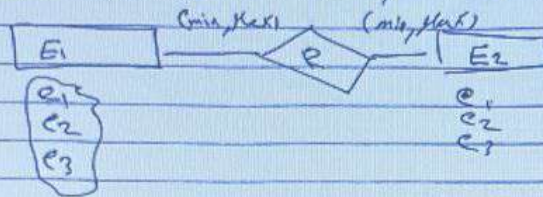
emp (employee) N to
dependent

partial

department N to
dependent
total

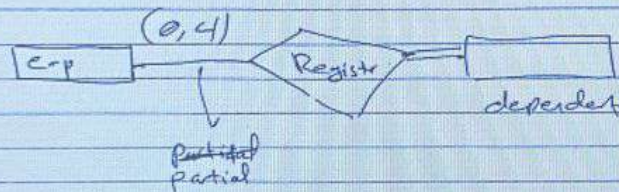
(10)

participation (min, Max) notation

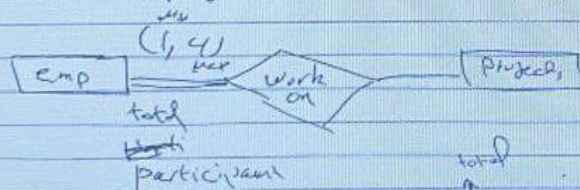


تعداد
حداقل
حداکثر
مشارکت کننده

Each employee has the right to Register
4 dependents in health insurance



The employee must work on in at
least one project and max 4 projects



مشارکت کننده
حداقل یک پروژه
حداکثر 4 پروژه