

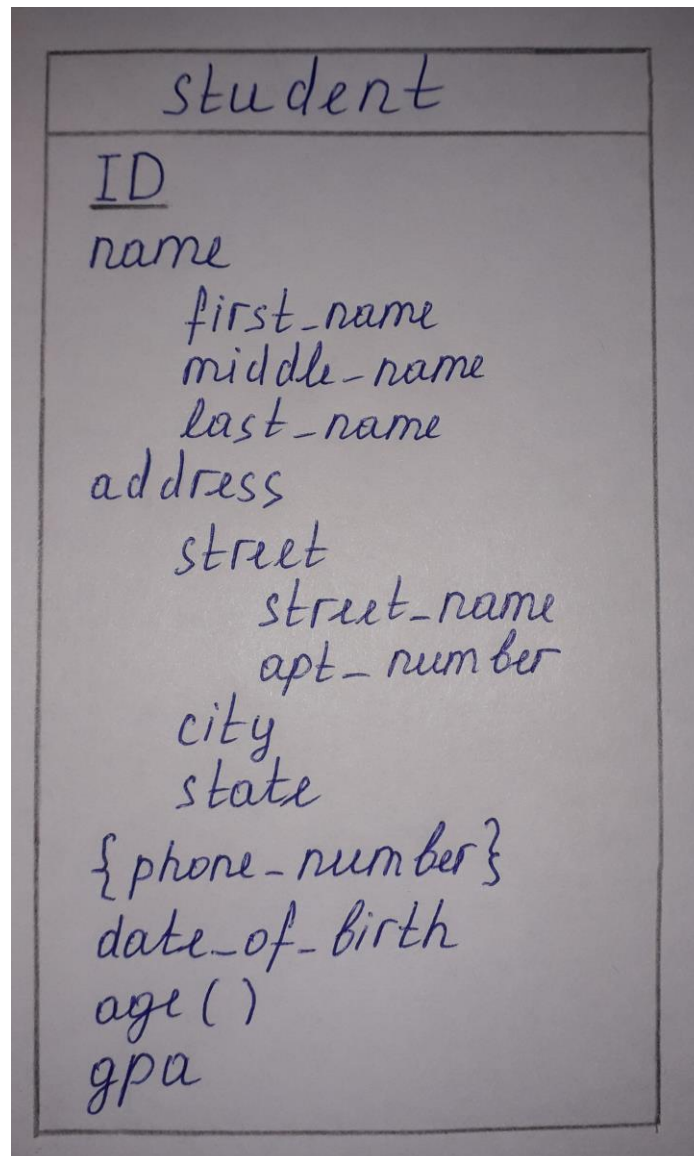
#### Laboratory work 4.

1. a)

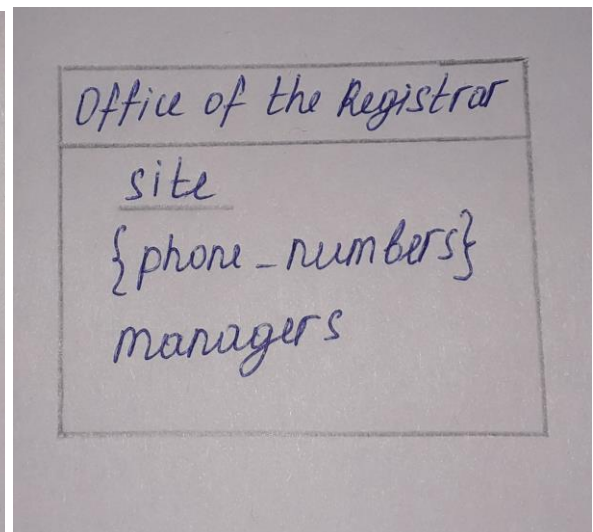
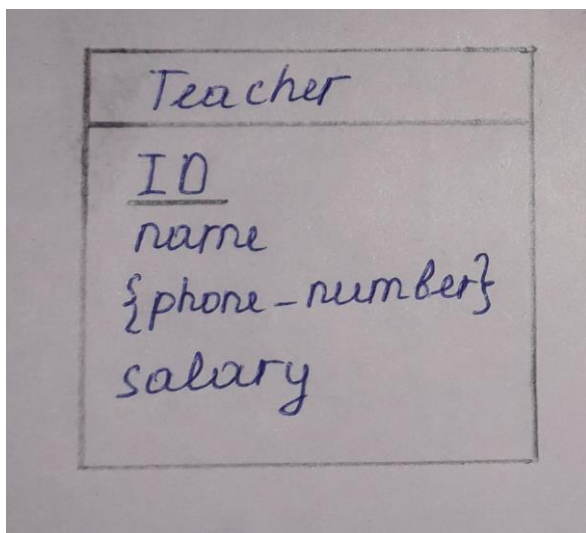
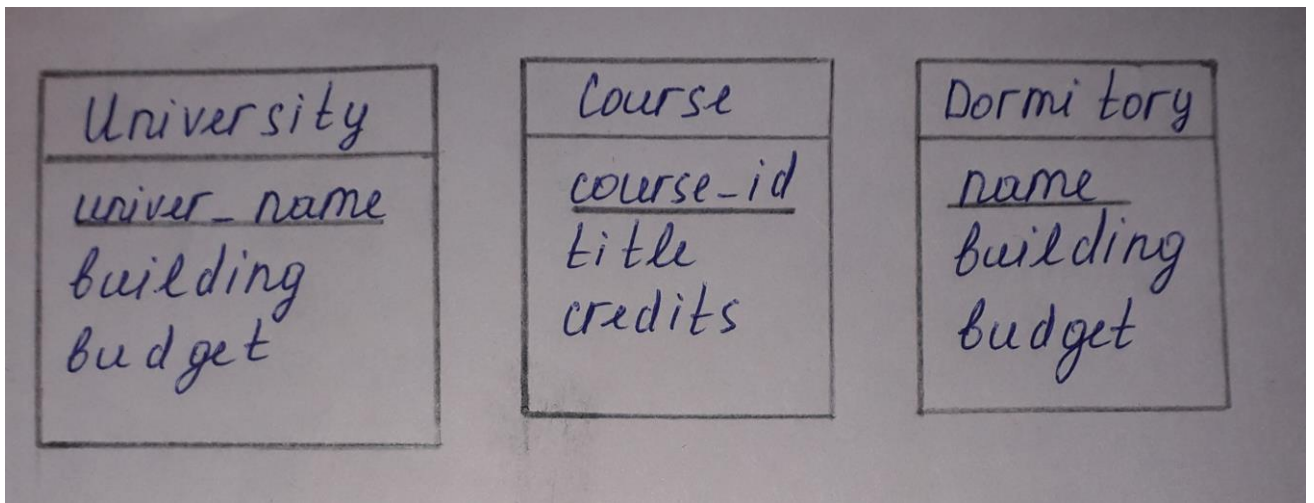
- Initial phase - characterize fully the data needs of the prospective database users.
- Second phase - choosing a data model (applying the concepts, translating these requirements into a conceptual schema of the database ).
- Final Phase -moving from an abstract data model to the implementation of the database (Logical Design and Physical Design).

b) **Entity-relationship (ER) data model** is a graphical approach to database design. It is a high-level data model that defines data elements and their relationship for a specified software system. **An entity** is an object that exists and is distinguishable from other objects. **Relationship** is an association among several entities.

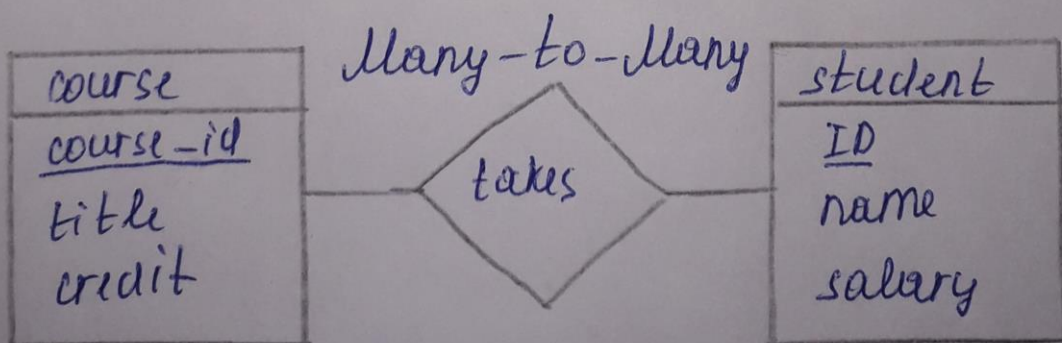
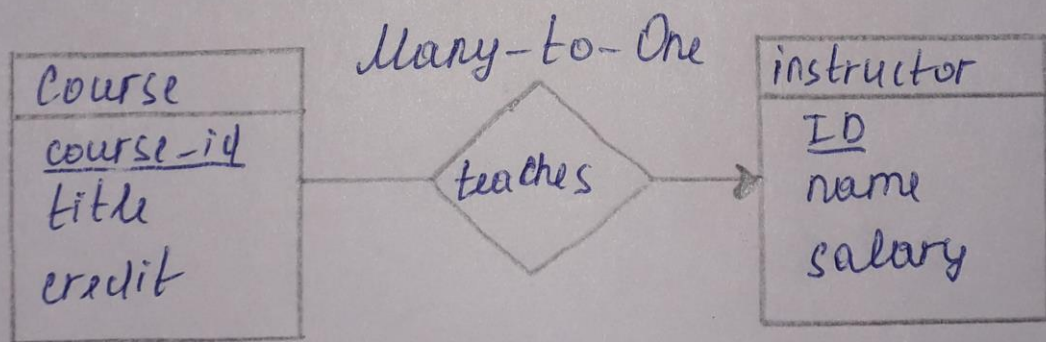
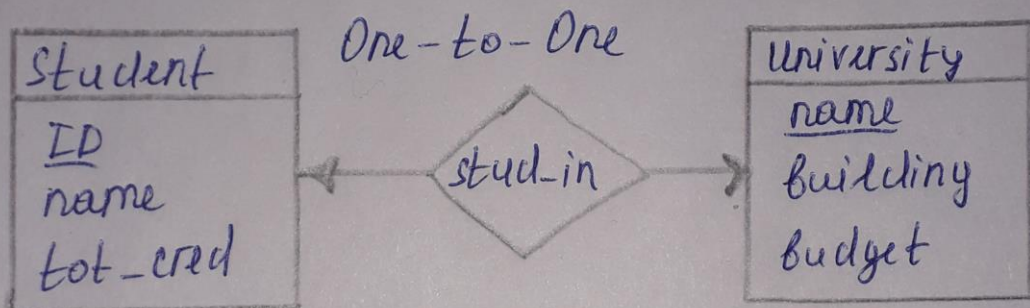
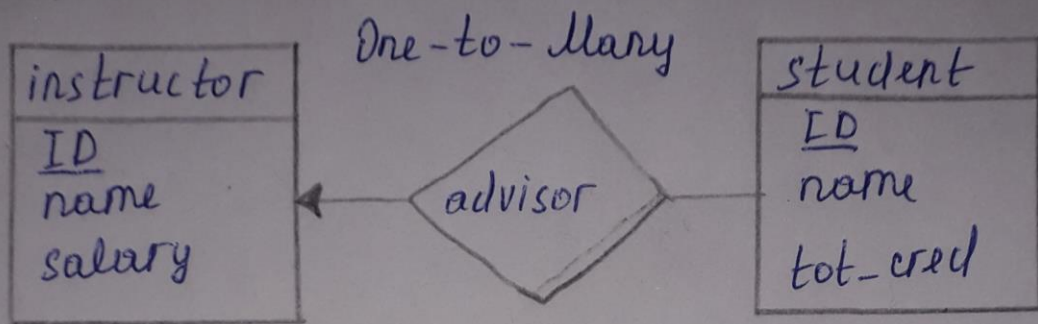
2. a)



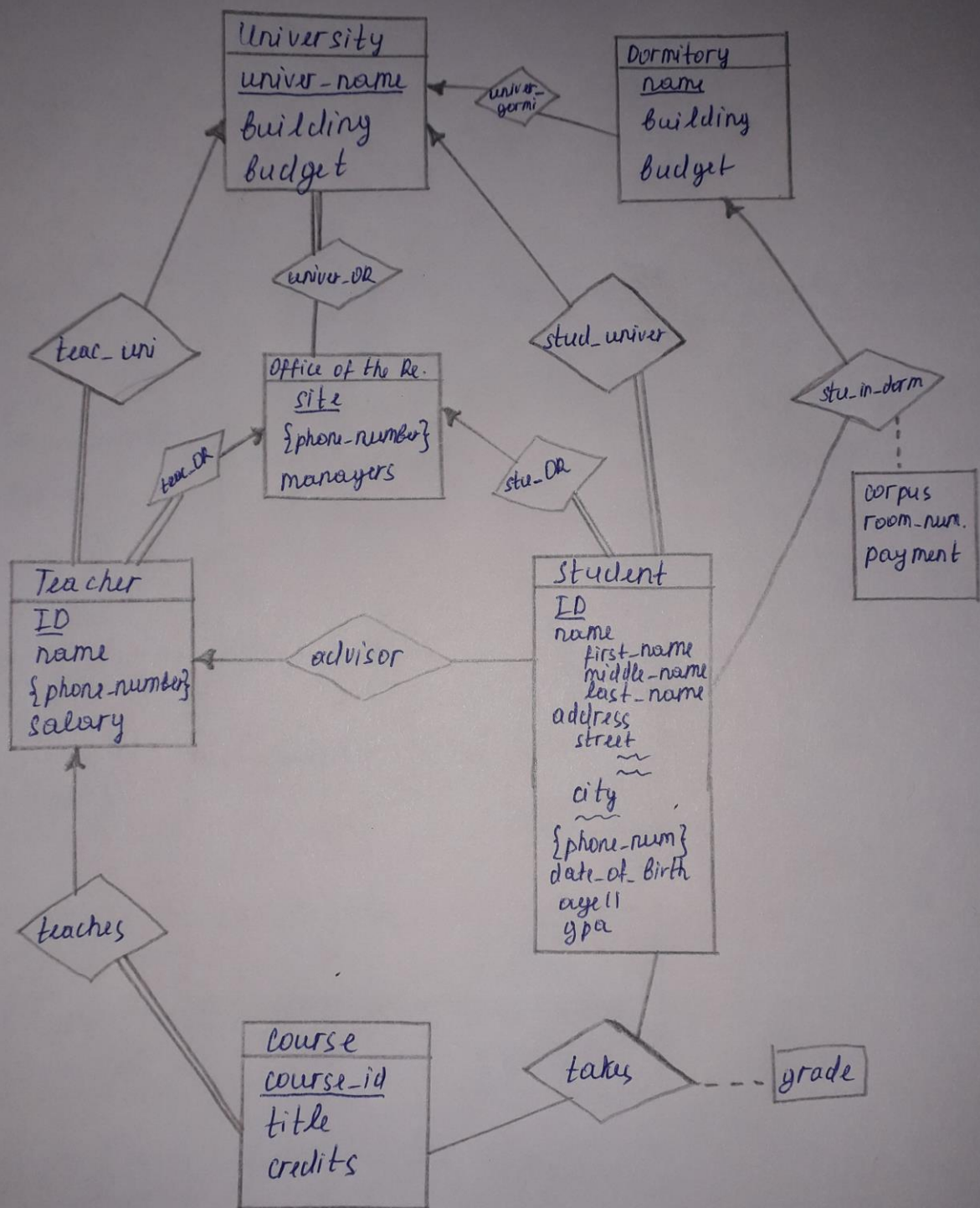
b)



3.







5.

