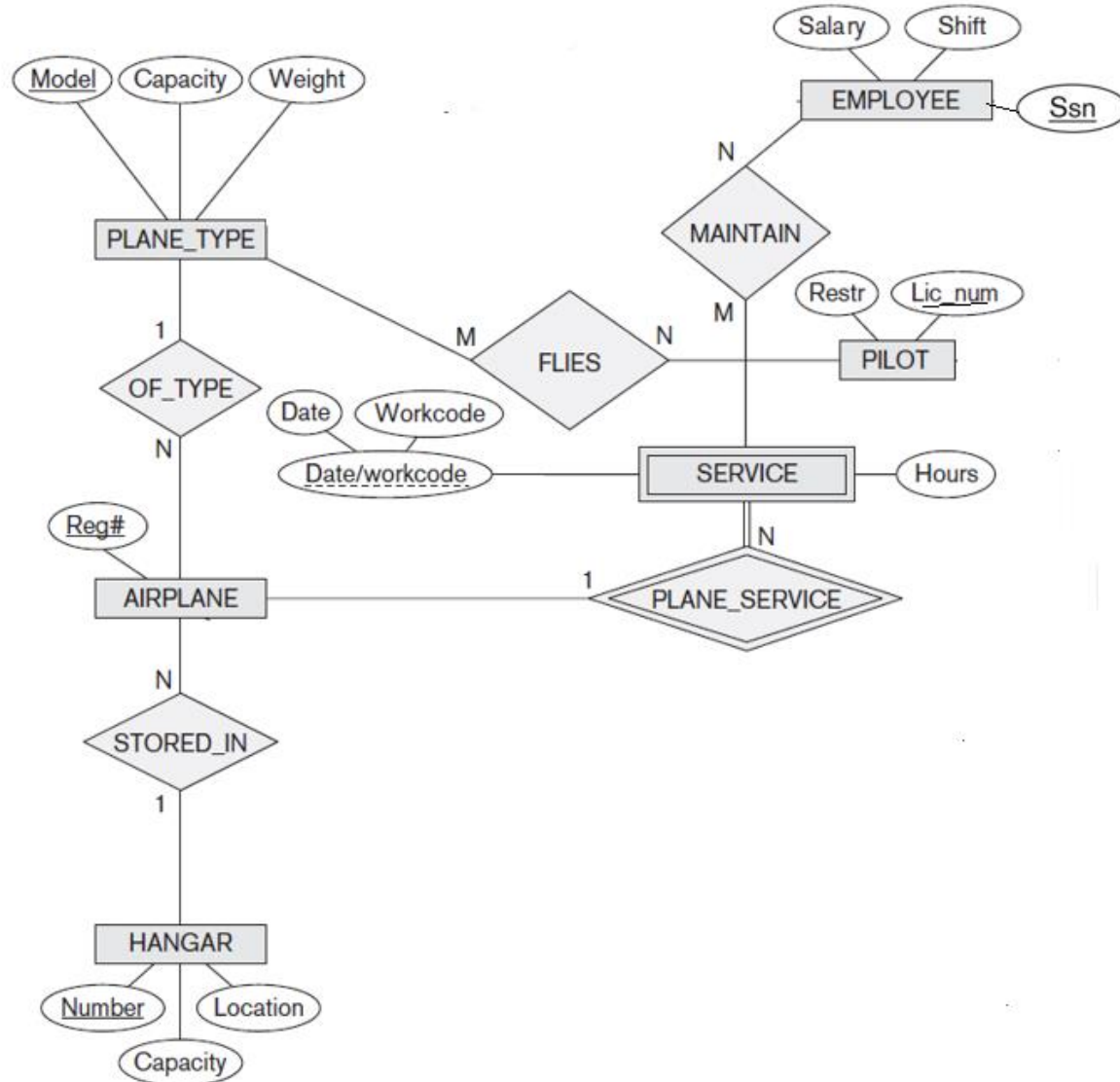- **Question 1: (4.5 Marks)**

- Describe the categories of data models.

- Conceptual (high-level, semantic) data models:

  - Provide concepts that are close to the way many users perceive data.

    - (Also called *entity-based* or *object-based* data models.)

- Physical (low-level, internal) data models:

  - Provide concepts that describe details of how data is stored in the computer. These are usually specified in an ad-hoc manner through DBMS design and administration manuals

- Implementation (representational) data models:

  - Provide concepts that fall between the above two, used by many commercial DBMS implementations (e.g. relational data models used in many commercial systems).

Question 2: (10.5 Marks)

Map the following ER diagram for small private airport to relational schema.

Employee

SSN	Salary	Shift

Pilot

Lics_num	Restr

Flies

Lics_num	Model

Plane_Type

Model	Capacity	Weight

Airplane

Reg#	Hangar_Number	Model

Hangar

Number	Capacity	Location

Maintain

Reg#	Date	WorkCode	SSN

Service

Reg#	Date	WorkCode	Hours