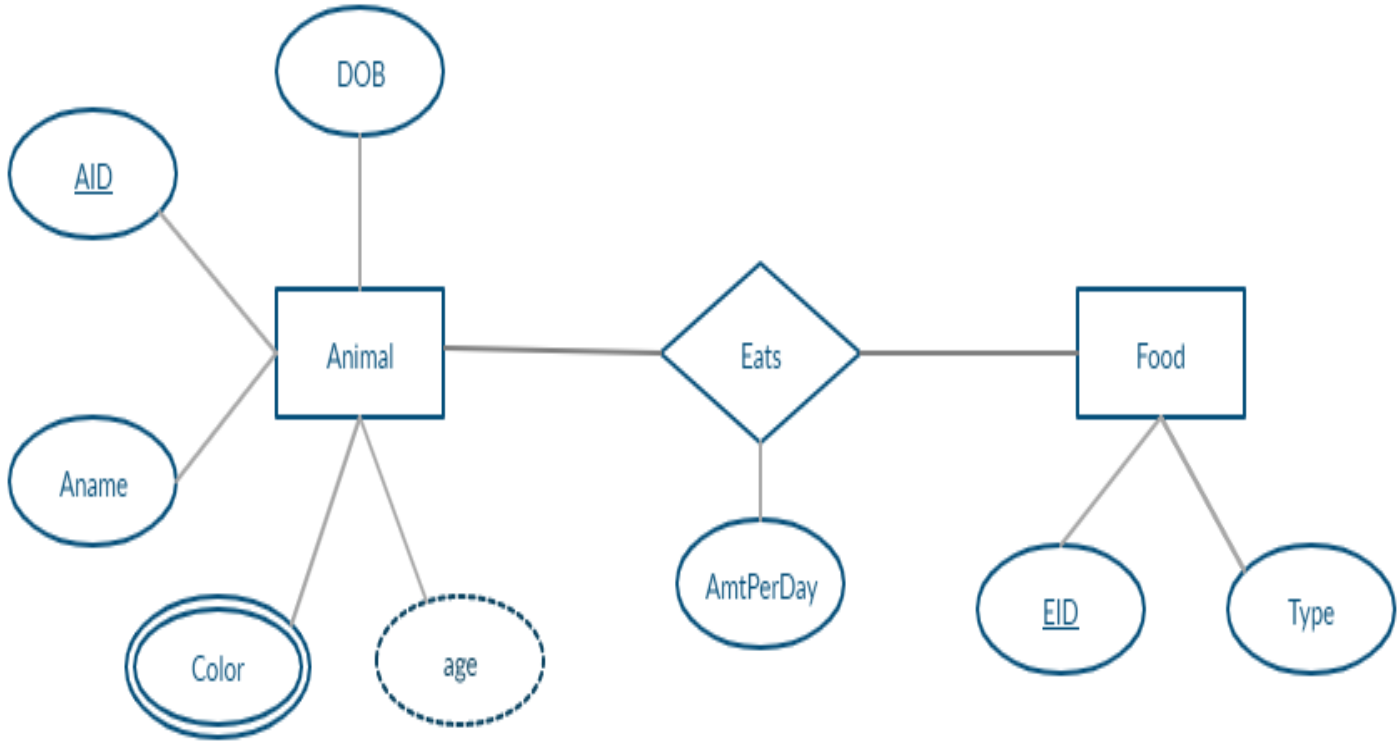
Database-Testbank(MID)

Q1) Study the following ERD and answer the following questions.



1.1 Describe the cardinality, degree, and participation of the relationship Eats:

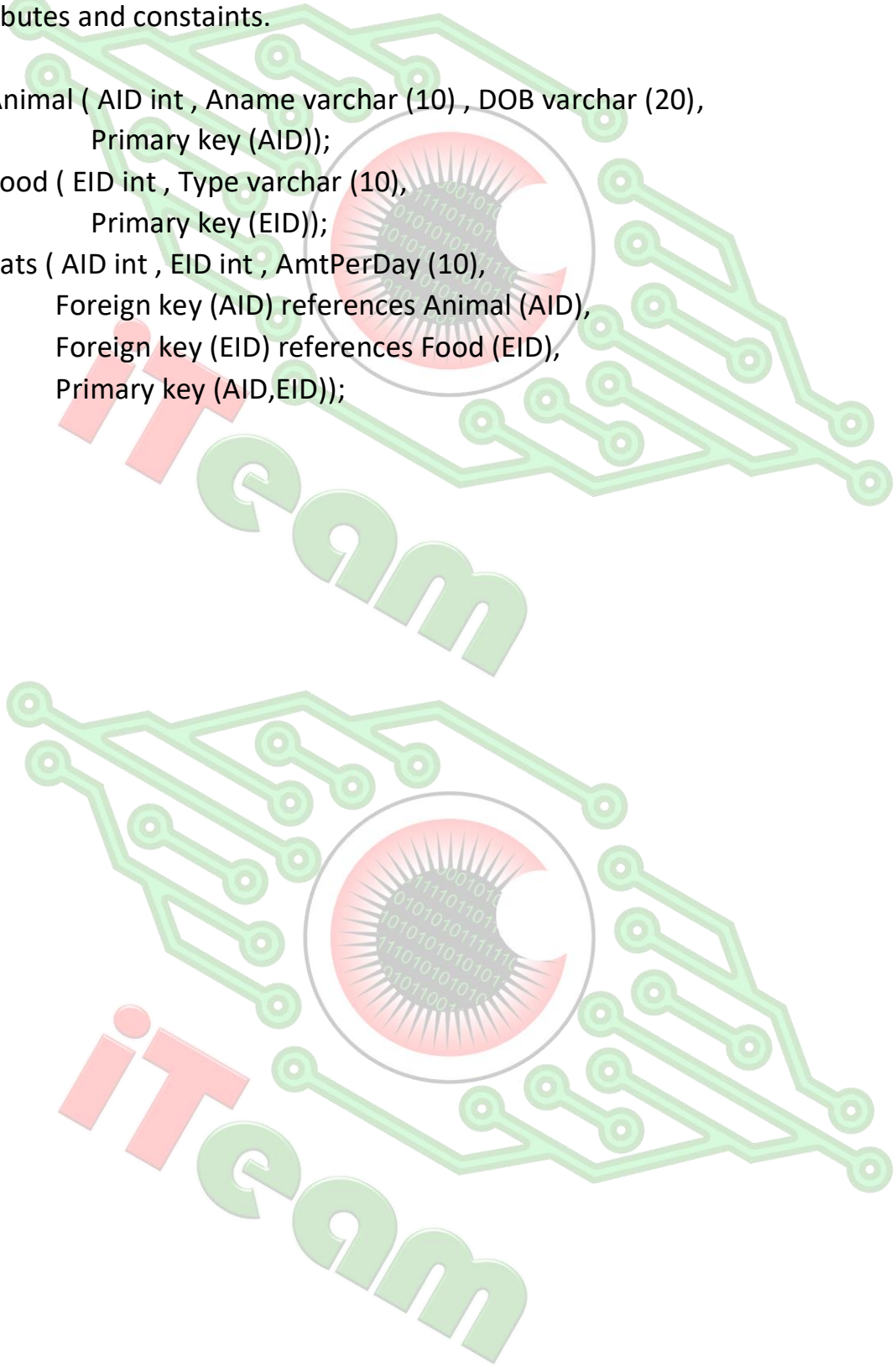
a) Cardinality (many to many)
b) Degree (binary)
c) Participation (partial)

1.2 Map the ERD into schema specifying the primary and foreign key constraints.

Animal (AID, Aname, DOB)
Food (EID, Type)
Eats (AID, EID, AmtPerDay)
AColor (AID, color)

1.3 Write all necessarily SQL statement to create the " Eats" table with all its Attributes and constaints.

```
Create table Animal ( AID int , Aname varchar (10) , DOB varchar (20),
                    Primary key (AID));
Create table Food ( EID int , Type varchar (10),
                    Primary key (EID));
Create table Eats ( AID int , EID int , AmtPerDay (10),
                  Foreign key (AID) references Animal (AID),
                  Foreign key (EID) references Food (EID),
                  Primary key (AID,EID));
```



Q2)

Patient Information				
Patient ID:	P001			
Patient Name:	Ahmad Hamdan			
Birth Date:	1/2/1973			
Admitting Staff Information				
Doctor Id:	D001		Doctor Name:	Saleem
Nurse Id:	N001		Nurse Name:	Amal
Visits information				
Visit ID	Visit date	Patient Temperature	Patient Blood Pressure	Notes
V0001	2/3/2009	37.5 C	140/90	Tired and needs care
V0002	2/4/2010	36.5 C	120/80	Getting better

Based on this form build the database by starting from a plain table and normalizing the plain table into the 1st , 2nd , 3rd normal forms. Make sure to clarify each step and clarify your decisions while normalizing the database. Show all tables in each step.

Step(0): Plain table with primary key

Patient (Patient ID ,Patient Name , Birth Date , Doctor Id , Doctor Name ,Nurse Id ,
Nurse Name , Visit ID , Visit date , Patient Temperature, Patient Blood Pressure)

Step(1): 1st Normal Form : Show all tables (Hint: Remove repeating group)

Patient(<u>Patient ID</u> ,Patient Name , Birth Date , Doctor Id , Doctor Name ,Nurse Id ,
Nurse Name)

Visit (<u>Visit ID</u> , Visit date , Patient Temperature, Patient Blood Pressure)

Step(2): 2nd Normal Form : Show all tables (Hint: Remove partial dependencies if exist)

Patient(Patient ID ,Patient Name , Birth Date , Doctor Id , Doctor Name ,Nurse Id ,

Nurse Name)

Visit (Visit ID , Visit date , Patient Temperature, Patient Blood Pressure)

Step(3): 3rd Normal Form : Show all tables (Hint: Remove transitive dependencies if exist)

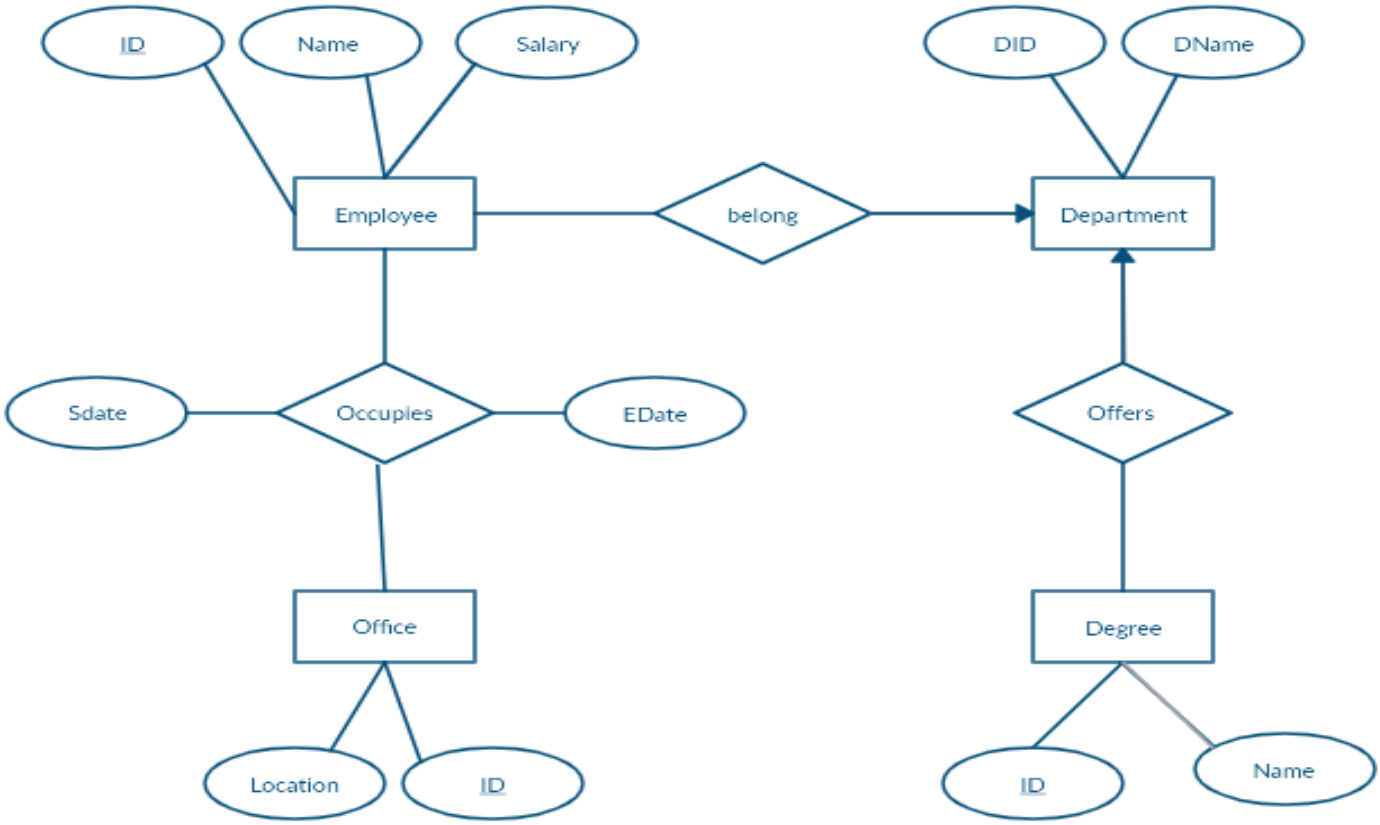
Patient(Patient ID ,Patient Name , Birth Date , Doctor Id , Nurse Id)

Doctor(Doctor Id , Doctor Name)

Nurse (Nurse Id , Nurse Name)

Visit (Visit ID , Visit date , Patient Temperature, Patient Blood Pressure)

Q3) Study the following ERD and answer the following questions.



3.1 Can the same department offer 2 degrees ? Clarify your answer showing the cardinality of the related portion of the ERD?

Yes it can , because the cardinality is (one _to _many) and the one goes to the department.

3.2 Can the employee belong to two different departments? Clarify your answer showing the cardinality of the related portion of the ERD?

No , because the cardinality is (one _to _many) and the one goes to the department not the employee

3.3 Does the ERD guarantee a separate office for each employee ? Clarify your answer showing the cardinality of the related portion of the ERD?

No , because the cardinality is (many _to _many) so every office employee can have more than one office, and every can have more than one employee

Q4) Consider the following schema :

Emp (Id ,FirstName , LastName , Salary , DeptNo)

Dept (DeptID , DeptName , Location)

Phone (ID ,Phone)

Dependent (ID, Name , Gender)

Convert the above into ERD: