(5)

Customer (Name : text , Aadhar No : text , Address : text ,
Email : text)

Account (AccountNO : text , Description : text , Balance : real ,
StartDate : timestamp , Type : enum (savings , current ,
cheque , term-deposit))

CA (Aadhar No : text , AccountNO : text)
(FK) (FK)

PhoneNumbers (AadharNO (FK) : text , Phone : text)

Transaction (TBalance : real , Remark : text , Amount : real ,
TTime : timestamp , AccountNO (FK) : text)

TermDepositAC (AccountNO (FK) : text , Duration : interval ,
InitialAmount : real , StartDate : timestamp)

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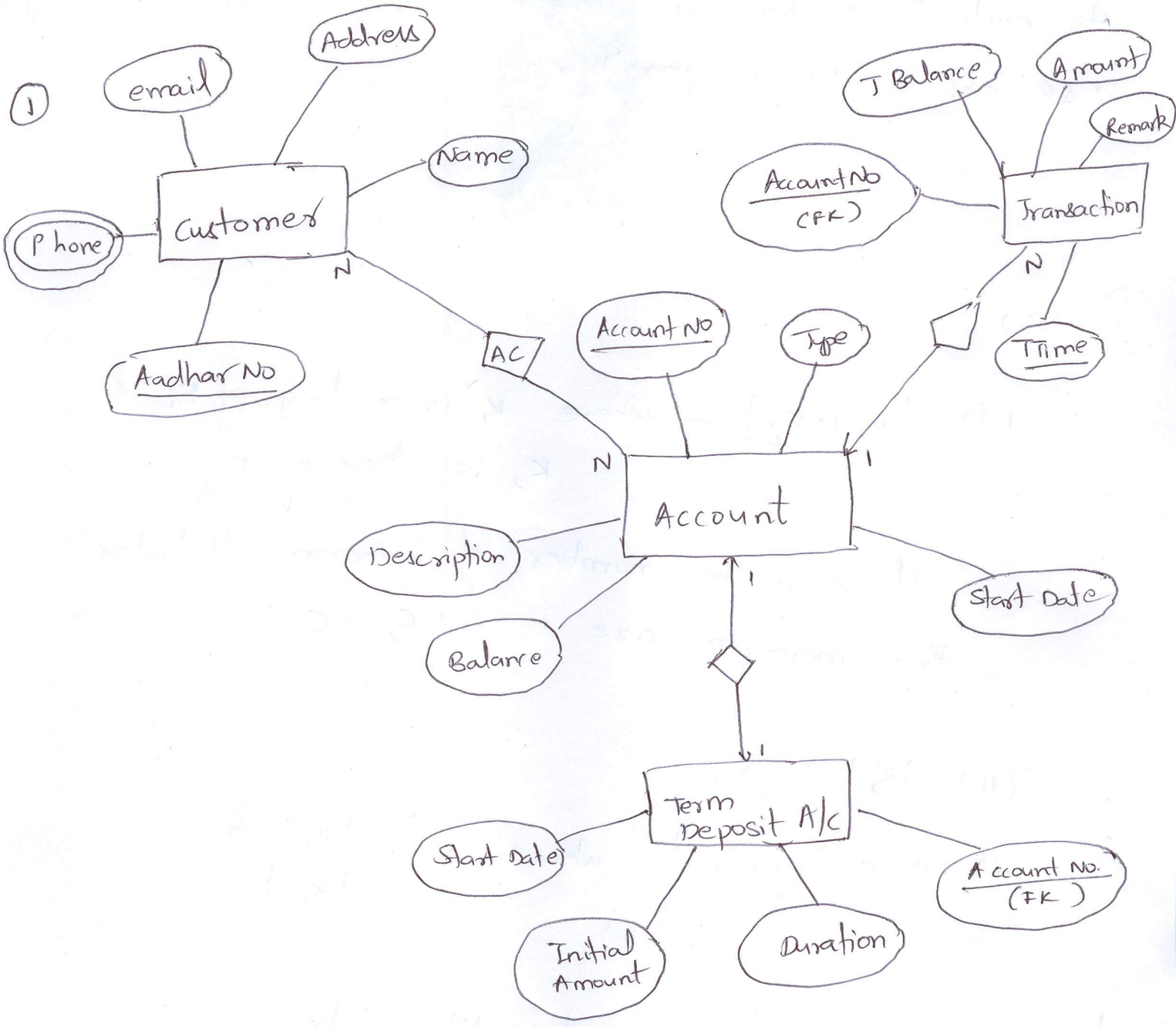
(1)



(3) For part (a)

we used a N-1 Mother child relationship to ensure that

For part (b)

We will have to make the relationship between baby and birth as N, 1 respectively

(Baby ^{N} —◇— ^{1} Birth) to have twins correctly represented.

As each Birth has a unique mother, so each baby also has a unique mother.

(4) (a)

(i) $|K_1 \cup K_2|$ — where K_1 is a key of E_1 & K_2 is key of E_2

if c is the number of common attributes

then minimum size $= c_1 + c_2 - c$

(ii) $|K_1| = c_1$

(iii) $\min(c_1, c_2)$ where $c_1 = |K_1|$ & $c_2 = |K_2|$

(b) Let S be the set of entity sets E_j having N-1 relationship,

then smallest possible key is

$$\bigcup_{E_i \in S} key(E_i) = \bigcup_{E_i \in S} \{K_i\}$$

if S is empty then

the size = minimum of all $|K_i|$

Pros & Cons

(b) is better than (a) in the sense that it is closer to the real world data. A birth is an important entity in a hospital database. It also allows us to add constraints easily & in a natural way. While in (a), we have to add separation relations. But (b) requires us to have various referential integrity constraints.

→ Primary key in each of the entities is the Id. e.g. for entity set babies, it is Baby-id.

For set births the primary key is (Baby-id, Doctor-id, Nurse-id)

FK for births are baby-id, doctor-id, nurse-id & mother id.

- There is no need to keep mother-id in the p-key as the relation b/w babies & mother is already one-one.

In the four-way diagram, birth requires that all mother, baby, doctor & nurse to present. But in binary representation total participation of births set is required (redundancy). But the implementation of binary relationship is easier than 4-way relationship.