**1)**

**Insertion Anomalies:**

we must know VisitNo and ProvNo for insertion because primary key is the combination of these two.

**Delete Anomalies:**

If we delete the provider of D2, we lose information of visit V10021.

**Update Aomalies:**

If we change ProvSpeciality where ProvNo is D2, another row will also be updated.

**2)**

### FD:

1. PatNo -> PatAge, PatZip9
2. PatZip9 -> PatCity
3. VisitNo -> PatNo, VisitDate
4. ProvNo -> ProvSpecialty, ProvEmail
5. ProvNo, VisitNo -> Diagnosis

### BCNF Tables

tableA(PatNo, PatAge, *PatZip9*)

FOREIGN KEY(PatZip9) REFERENCES tableB

tableB(PatZip9, PatCity)

tableC(VisitNo, *PatNo*, VisitDate)

FOREIGN KEY(PatNo) REFERENCES tableA

tableD(ProvNo, ProvSpecialty, ProvEmail)

UNIQUE(ProvEmail)

tableE(ProvNo, VisitNo, Diagnosis)

FOREIGN KEY (ProvNo) REFERENCES tableD

FOREIGN KEY (VisitNo)REFERENCES tableC

3)

Student (StdNo, StdName, StdEmail, StdAddress, StdCity, StdState, StdZip) UNIQUE(StdEmail)

Lender(LenderNo, LenderName)

UNIQUE(LenderNo)

Institution(InstNo, InstName, InstMascot) UNIQUE(InstName)

→ added unique constraints as StdEmail, LenderNo, InstName are mentioned unique

→ having StdEmail and InstName unique viloates BCNF

4)

OrdNo→ItemNo (row1-row2, row3-row4)

OrdNo→QtyOrd (row3-row4)

OrdNo→CustNo none

OrdNo→CustBal none

OrdNo→CustDisc none

OrdNo→ItemPrice (row1-row2, row3-row4)

OrdNo→OrdDate none