**Q1**

**a):**

B->EF, F->D violate BCNF

**b):**

A B C D E F

1 1 1 1 1 1

2 2 2 1 1 1

Redundancy are highlighted. This redundancy exists because F->D violates BCNF.

**c):**

R1(ABC), R2(BDEF)

**d):**

R1(ABC) {A->BC, BC->A}

R2(BDEF) {B->DEF, F->D}

**e):**

The new schema is not in BCNF

**Q2**

**a):**

{BC}

**b):**

For a set of attribute to be a key, that set has to contain B and C. Since BC is already a key, therefore nothing else can be key.

**c):**

Construct a minimal basis M of FDs

{A->DE, C->A, E->A}

For each FD X->Y in M, define new relation with schema XY

R1(ADE), R2(AC)

If no relation is superkey for R, add relation whose schema is some key

R3(BC)