task 3

a) Determine the candidate keys (cks) for R

According to trick one, A should be kept.

According to trick two, & R

So cks should be {AB} {AD} {AE}

b) {F} ⇒ {F}, {D} ⇒ {B} violate the condition

c) R(ABCDEF)

{E} ⇒ {F} | violate the BCNF condition

R₁   R₂
{ABCDE}   {EF}
FD: {AB} ⇒ {CDE}   FD: {E} ⇒ F}
    {D} ⇒ {B}
cks: {AB} {AD}
We can see {D} ⇒ {B} violate the BCNF condition.

R₄   R₅
{ACDE}   {DB}
FD: {AD} ⇒ {CE}   FD: {D} ⇒ {B} ck: {D}
ck: {AD}

task 4
R(A, B, C, D, E)   B G A

ck: {BC}

FD: {C} ⇒ {D} violate the BCNF condition.

R₂   R₃
{ABCE}   {CD}
FD: {BC} ⇒ {AE}   FD: {C} ⇒ {D} ck: C
ck: {BC}