① find highest NF of R(A, B, C, D, E)

with FDs { A → D, B → A, BC → D, AC → BE }

Checking 1NF

- Since no MVA, ⇒ in 1NF

Checking 2NF it's in 1NF

$(CD)^+ = \{C, D\}$

check PD: find keys: {AC, BC}

A → D ⇒ P.D occurs

not in 2NF ✓

Ans: highest NF: 1NF ✓

(2) find highest NF of R(A, B, C, D, E) with

$\alpha \rightarrow \beta$

FD { BC → D , AC → BE , B → E }

in INF , since no MVA

$A \rightarrow E$

Checking 2 NF

C.K. = {AC}

$C \rightarrow D$ $BC \nsubseteq AC$

Prime Attr. = {A, C}

B is not proper subset of C.K.

non-prime attri. = {B, D, E}

BC-> D is in 2NF , since BC is not a proper subset of c.k. AC

AC--> BE is in 2NF, since AC is CK

B--> E is in 2NF, since B is not proper subset of c.k. AC