Tom Mi
HW-5

1) $S \to Sa \mid SBa \mid Ba \mid a$

✓ $A \to aa$

$B \to Bb \mid Ba \mid b$

α = recursive
β = non-recursive

$\alpha = b \mid a$
$\beta = b$

$B \to bB'$
$B' \to bB' \mid a$

non recursive

$\alpha = a$ $\beta = Ba$ $\gamma = BA$ $\gamma = a$

$S \to BAS' \mid aS'$
$S' \to aS' \mid BaS' \mid \epsilon$
$A \to aa$
B'
$B' \to bB' \mid aB' \mid \epsilon$

Answer for #1

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Compilers

NO

2. No, there is left recursion so NOT in LL(1)

$S \rightarrow abCS \mid abC \mid AC$
$A \rightarrow Aa \mid b$ → $\alpha = a$ $\beta = b$ $A \rightarrow$ [illegible]
$A' \rightarrow aA' \mid \varepsilon$
$C \rightarrow cC \mid D$
$D \rightarrow dd$

$S \rightarrow abCS \mid abC \mid AC$
$A \rightarrow bA'$
$A' \rightarrow aA' \mid \varepsilon$
$C \rightarrow cC \mid D$
$D \rightarrow dd$

$S \rightarrow abX \mid AC$
$X \rightarrow C \mid CS$
$A \rightarrow bA'$
$A' \rightarrow aA' \mid \varepsilon$
$C \rightarrow cC \mid D$
$D \rightarrow dd$

$S \to abX \mid AC$

$X \to c \mid cS \longrightarrow X \to cT$

$T \to S \mid \varepsilon$

$A \to bA'$

$A' \to aA' \mid \varepsilon$

$C \to cC \mid D$

$D \to dd$

Now $k = \phi$ for all production grammar is LL(1)

$S \to abX \mid AC$

$X \to cT \mid CS$

$A \to bA'$

$A' \to aA' \mid \varepsilon$

$C \to cC \mid D$

$D \to dd$