Q. 2.30

d. $\{t_1 \# t_2 ... \# t_k \mid k \geq 2, t_i \in \{a,b\}^* \text{ and } t_i = t_j \text{ for } i \neq j\}$

Assume $L =$ Context Free

$S = a^p b^p \# a^p b^p \in L$

Let vxy fall on one side of $\#$
then pumping once uv^2xy^2z results
in a string where $t_1 \neq t_2$, so uv^2xy^2z is not
in L.

Let $\#$ be contained in vxy. We can pump down
to uv^0xy^0z, the s will not have $\#$ and
will not be in L.

Let x contain $\#$, v contains b^p, y contains a^p
Pumping down to uv^0xy^0z reduces the
number of b's in t_1 and a's in t_2.
Now $t_1 \neq t_2$, therefore not in L.

    All case contradict there fore
L is context free