2.30 a

Assume that the language is CF.
According to the pumping lemma, there is
a pumping length p.
Consider $s = 0^p 1^p 0^p 1^p$. We'll show that it can't
be pumped.
Consider any division of s into $uvxyz$ such that
$|vy| > 0$, and $|vxy| \leq p$. There are only
two cases to consider.
Case 1. either v or y contains both 0 and 1.
          $uvvxyyz$ does not contain 0 and 1
          in the right order. (i.e, not in the
          form of $0 \cdots 0 1 \cdots 1 0 \cdots 0 1 \cdots 1$)
          Thus $uvvxyyz$ is not a member of
          the language.
case 2.   both v and y contains at most one kind
          of symbol.
          $uvvxyyz$ contains runs of 0's and 1's
          of unequal length and cannot be
          a member of the language

Consequently $uvvxyyz$ is not a member of
   the language, contradicting that the language
   is CF.

2.31

Assume that the language is CF.
According to the pumping lemma, there is
a pumping length p.
Consider $s = 0^p 1^{2p} 0^p$. We'll show that it can't
be pumped.
Consider any division of s into $uvxyz$ such that
$|vy| > 0$, and $|vxy| \leq p$.

case 1 vxy contains only 0's or 1's.
    $uvvxyyz$ contains an unequal # of 0's
    and 1's, so that it is not a member of
    the language

case 2. vxy contains both 0's and 1's
    subcase 1. either v or y contains both 0 and 1.
        $uvvxyyz$ is not a palindrome.

    subcase 2. both v and y contains at most one kind
        of symbols.
        $uvvxyyz$ is not a palindrome

    Consequently $uvvxyyz$ is not a member of .... ..
    the language, contradicting that the language
    is CF.