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## Answer ANY TWO of the following three questions:

1. Using the Pumping Lemma, prove that the following language over  $= \{0, 1\}$  is not context-free:

{0 1 0 : 0}

2. Consider the following two languages:

 $A_{TM} = \{ \ , \ : \ is a Turing machine that accepts string \ \} \\ ALL_{TM} = \{ \ : \ is a Turing machine and L( ) = \ * \}$