Mark each True/False as either T or F. (1pt each)

___ To achieve a given power factor, the required \( C_{pf} \) increases as \( L \) decreases.  
   Why or why not? ____________________________________________________________

___ As the pf is increased toward 1, \( |I| \) will decrease which will increase the %VR.

___ Decreasing \( R_{line} \) will allow a smaller \( C_{pf} \) to be used to achieve a given %\( \eta \) and %VR.

___ The instantaneous power delivered to the \( 3\phi \) load is independent of time.

___ \( V_{cn} = (1000/\sqrt{3}) \angle -120^\circ \) V and \( V_{ab} = 1000 \angle 30^\circ \) V

___ \( I_{ab} = 10 \angle -45^\circ \) A

___ \( v_{ca}(t) = 1000\sqrt{2} \cos(2\pi 60t + 150^\circ) \) V

___ \( P_{3f} = 10 \cos 45^\circ \) KW

___ Suppose an electromagnet is energized with 10VDC. Its lifting ability would be lower if it were energized with an AC voltage of 10 V. 
   Why or why not? ____________________________________________________________

___ Suppose that, with a given current, an electromagnetic with 3 identical coils exerts a 9N force. 
   With the same current, an electromagnet with 2 of the same coils could only exert 6N.