ENEE2360 CH2 Homework part2

Problem1.
A certain full-wave rectifier has a peak output voltage of 30 V.
A 50 µF capacitor filter is connected to the rectifier.
  a) Calculate the peak-to-peak ripple and the dc output voltage
     developed across a 600 Ω load resistance.
 b) Determine the ripple factor.

Problem2.
 What value of filter capacitor is required to produce a 1% ripple
factor for a full-wave rectifier having a load resistance of 1.5
kΩ? Assume the rectifier produces a peak output of 18 V.

Problem3.
 A full-wave rectifier produces an 80 V peak rectified voltage
from a 60 Hz ac source. If a10 µF filter capacitor is used,
determine the ripple factor for a load resistance of 10 kΩ.

Problem4.
 Determine the peak-to-peak ripple and dc output voltages in
Fig(1). The transformer has a 36 V rms secondary voltage
rating, and the line voltage has a frequency of 60 Hz. The diodes
have Vk = 0.7V

Fig.(1)
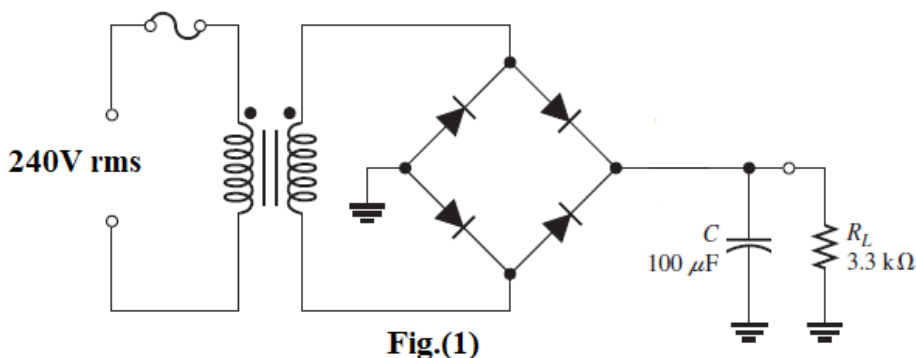
Problem5.
a) Determine VL , IL , IZ , and IR for the network of Fig.(2)if
$RL = 180$ Ω.

b) Repeat part (a) if $RL = 470\ \Omega$.
c) Determine the value of RL that will establish maximum power conditions for the Zener diode.
d) Determine the minimum value of RL to ensure that the Zener diode is in the "on" state.
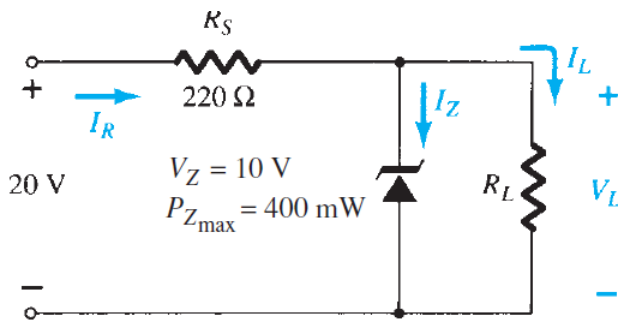

Fig.(2)

Problem6.
For the network of Fig. (3), determine the range of Vi that will maintain VL at 8 V and not exceed the maximum power rating of the Zener diode.
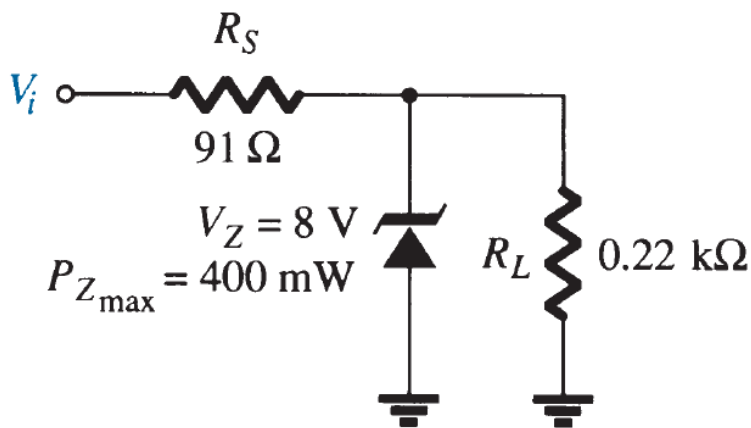

Fig.(3)