ELEC-E8412 **Power Electronics**

Exercise No 02 05.10.2023

Problem 1:

For the half-wave rectifier, the source is a sinusoid of 300 V rms at a frequency of 50 Hz. The load resistor is 25.

Determine

a) the average load current
b) the power absorbed by the load
c) the apparent power supplied by the source
d) the power factor of the circuit

Problem 2:

For the half-wave rectifier with R-L load, R=100Ω, L=0.1 H, ω=377 rad/s, and Vm=100V. $\boldsymbol{\beta}$=$\mathbf{3.5}\ \boldsymbol{rad}$

Determine

a) expression for the current in this circuit,
b) the average current,
c) the rms current
d) the power absorbed by the resistor, and
e) the power factor.

Problem 3:

For a half wave rectifier, the source voltage is 120 V-RMS at 60 Hz. The load resistance is 5 Ω.

Determine

a) Average load current.
b) Average power absorbed by load
c) Power factor.