# *University of Portland*
School of Engineering

EE 301
Spring 2018
A. Inan

Homework # 6
(Assigned: Monday, March 26, 2018)
(Due: Wednesday, April 4, 2018, 11:25a.m.)

Inan problem # 9: Sinusiodal Steady-State Waves on Transmission Lines.
For the uniform lossless 50 Ω transmission line circuit shown, find : (a) the load reflection coefficient Γ_L ; (b) the standing wave ratio S ; (c) all the V_{max} and V_{min} positions (provided in a table); (d) the V_S and V_L phasor voltages; and (e) the time-average power P_L delivered to the load.
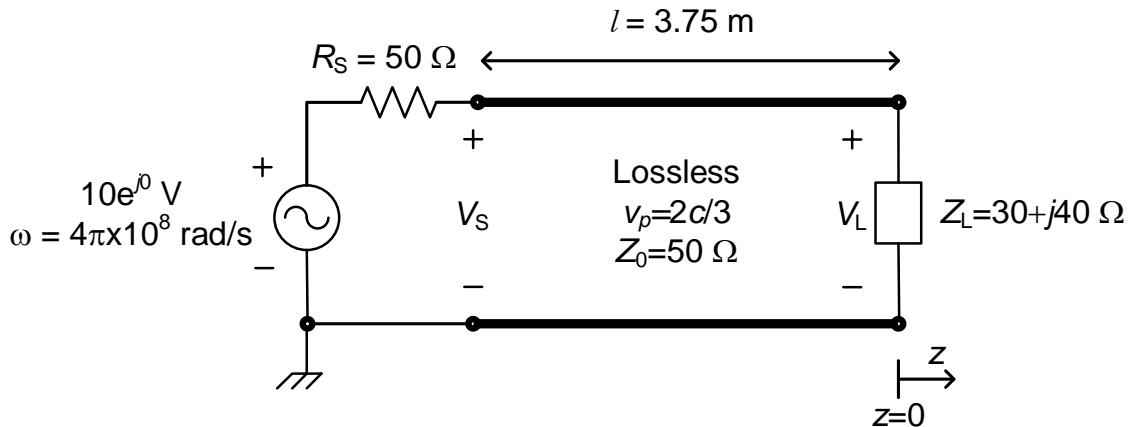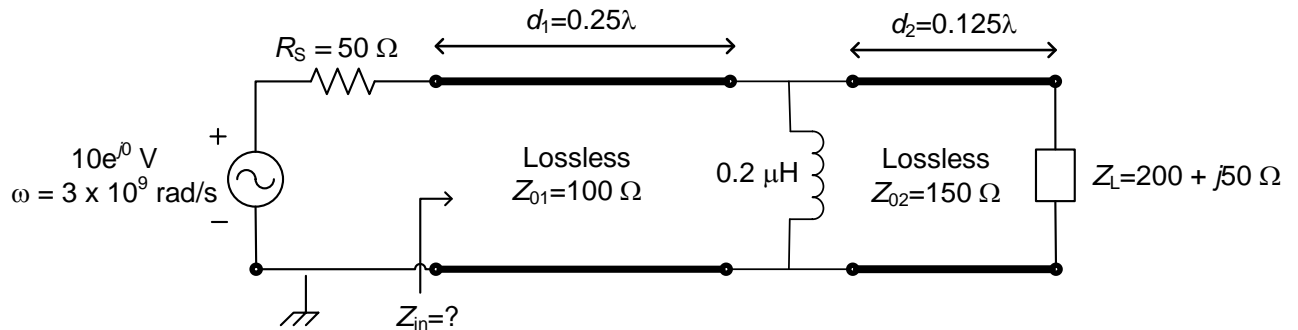

Inan problem # 10: Two lossless transmission lines.
For the double transmission line circuit shown, find (a) the standing wave ratio on each line (S_1 and S_2); (b) the input impedance Z_{in}; and (c) time-average power P_L delivered to the load impedance Z_L.
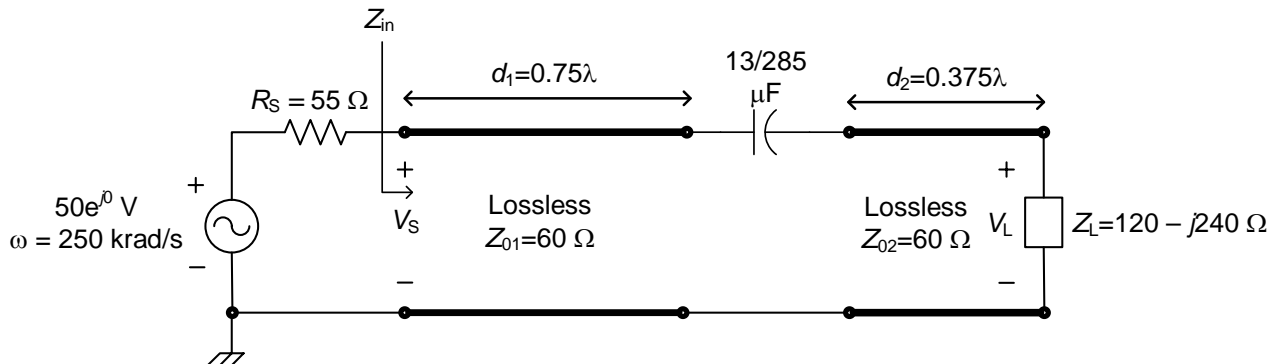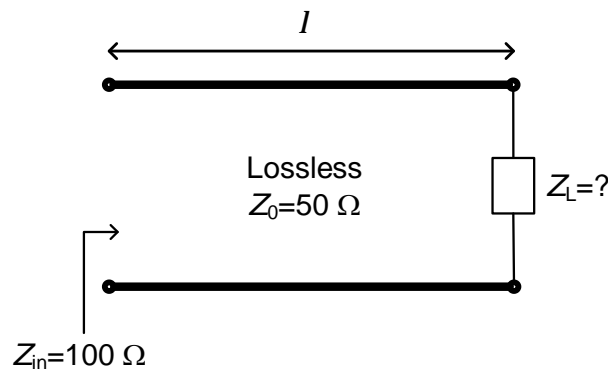
Inan problem # 11: Two lossless transmission lines.
Repeat Inan problem # 10 for the transmission line circuit shown.

Inan problem # 12: Unknown load.
For the 50 Ω lossless transmission line shown, find the unknown load impedance Z_L for the following cases: (a) $l = 0.25\lambda$; (b) $l = 0.375\lambda$; (c) $l = 0.5\lambda$; and (d) $l = 1.75\lambda$.

Please use the following guidelines for your homework solutions:
1) On the first sheet, at the top center, write: <u>Homework #6-Solutions</u>.
2) Provide <u>your full name</u> on the upper right corner of the first sheet.
3) Also write: EE 301/Spring 2018 on the upper left corner of the first sheet.
4) Solve each problem on a separate sheet unless your solution is very short.
5) Box all of your answers.
6) Staple your solutions in the above order before you turn them in.

Please turn in your homework on time.