OULUN
YLIOPISTO
SÄHKÖTEKNIIKAN OSASTO

Circuit theory II 4.4.2003. (use of graphic calculators is allowed)

1. Define briefly the following terms:
   a) Stable network
   b) Amplitude and phase margin
   c) Lumped / distributed
   d) Causality
   e) Loop gain
   f) Nonlinear circuit

2. Derive the transfer function Uo(s)/Ui(s) for fig. 1, draw the pole-zero map and draw the Bode plots. Is the network stable, andhow did you verify it. Ratkaise kuvan 1 kytkennän siirtofunktio Uo(s) / Ui(s), piirrä nolla-napa -kartta ja luonnostele Boden kuvaajat. Onko kytkentä stabiili, perustele?

3. Calculate the z parameters for circuit in fig. 2

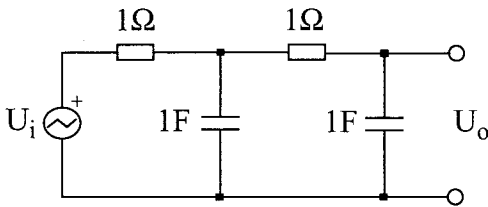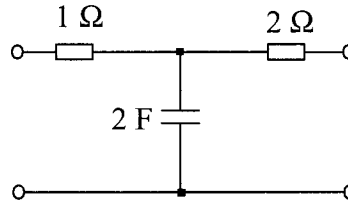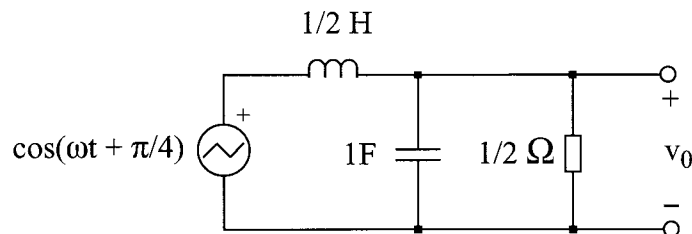4. Calculate the vo phasor in a steady state in fig. 3. $\omega = 10$ rad/s.

Fig 1

Fig 2

Fig 3