**2020 – 2021 Spring, CSA CRN:25203**
**Homework 4**

**Rules:**

1) Your homework should be hand-written on A4 paper.
2) Have at least 2,0 cm margin from the edges.
3) Each page of the solution has to be numbered and should have name, last name, student ID number and signature on top right corner.
4) If you do not comply with the format rules your grade will be reduced by 10 (over 100) points.
5) Assignments in PDF format are required to be uploaded to the Ninova system before the deadline. There won't be extra time for uploading the assignments.
6) The students are expected to work on the solutions on their own. The points of identical or very similar looking assignments will be divided to the number of such assignments.

**a)** Find the Thevenin equivalent of the 2-terminal a – b in sinusoidal steady state. (Fig.1) $e(t)=2\sin(2t)$, $C=1F$, $L=1H$, $R=½\Omega$ (50 points)
**b)** A load impedance $Z_L = 2+j2$ is connected to this 2-terminal. Find the active, reactive and apparent power of $Z_L$. (15 points)
**c)** Find the element types and their values for the matching circuit in Fig.2 (50 points) and find the active, reactive and apparent power of $Z_L$ in this case (15 points).

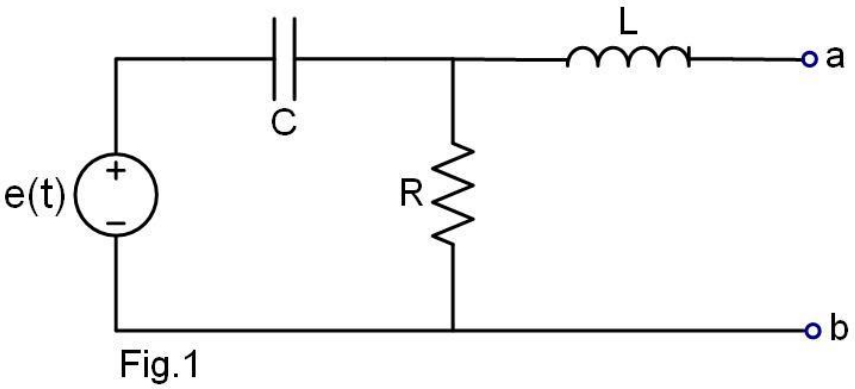

Fig.1

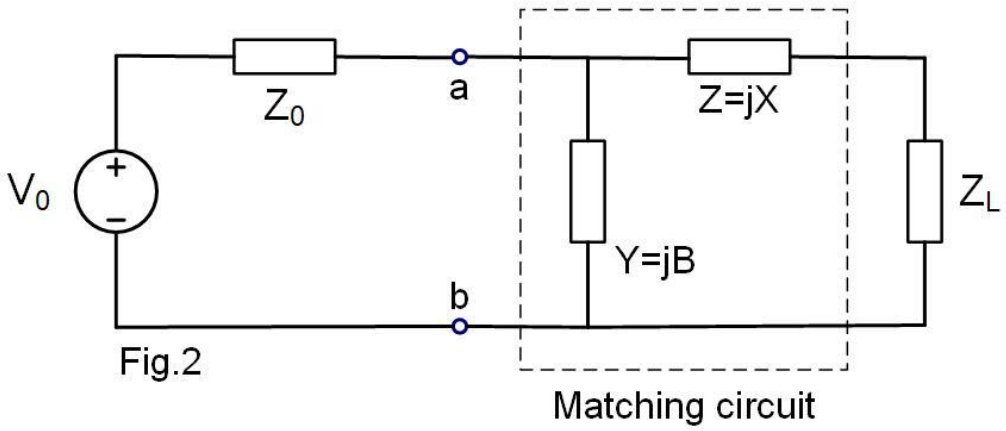

Fig.2