

# NEISSE - ELEKTRO 2018

Name: .....

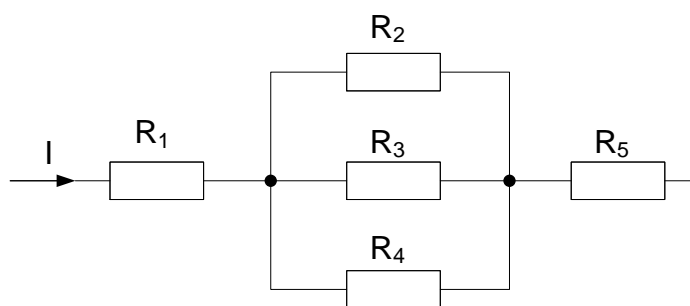
1	2	3	4	5	$\Sigma$

Tasks for the finale  
90 min ; with formulary (english edition)

---

1

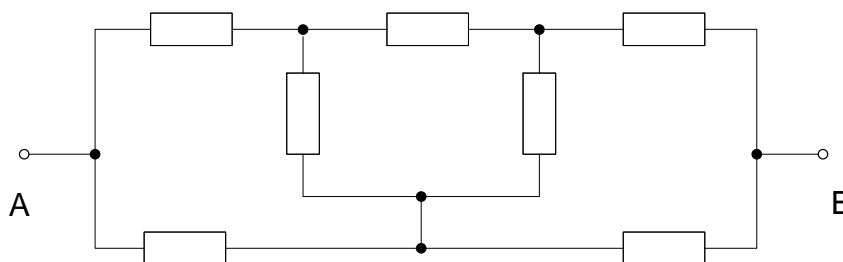
Calculate all missing currents and voltages in the following circuit.



$$\begin{aligned}
 I &= 50 \text{ A} \\
 R_1 &= 12 \ \Omega \\
 R_2 &= 10 \ \Omega \\
 R_3 &= 8 \ \Omega \\
 R_4 &= 6 \ \Omega \\
 R_5 &= 4 \ \Omega
 \end{aligned}$$

2

Calculate the resistance between the terminals A and B in the following circuit, if any partial resistance is 100  $\Omega$ .



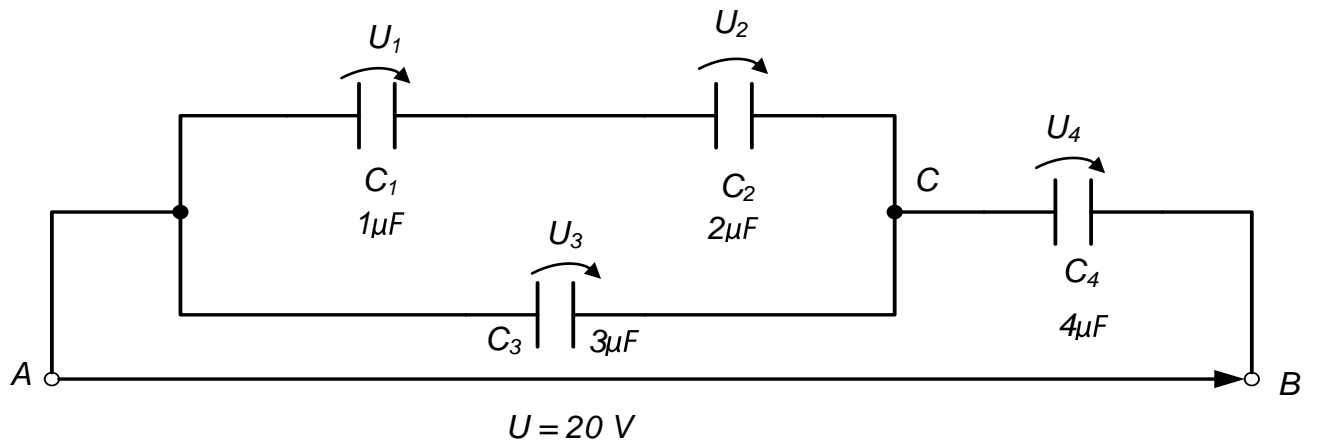
3

Draw the **base circuit** and calculate with:  $U_q = 12\text{V}$ ;  $R_i = 2\ \Omega$ ;  $R_a = 13\ \Omega$

- the current  $I$  and the voltage  $U$  across the resistor  $R_a$
- the short-circuit current  $I_k$
- the power  $P$  converted in the external resistance  $R_a$
- Calculate the current through the resistor  $R_a$ , if a resistor  $R_p = 5\ \Omega$  is connected in parallel with it.

4

Given is the following capacitor circuit:



Calculate:

- a) the total capacity
- b) All partial voltages on the capacitors

**Note:** capacitors connected in series  $\rightarrow$  same charge  $Q$   
Parallel connected capacitors  $\rightarrow$  same voltage  $U$

5

On a flat coil body in the form shown in the following figure is a coil wound with  $N = 200$  turns, which is traversed by a current of  $I = 30 \text{ mA}$ . Calculate the electric field strength at point P.

