

General engineering studies laboratory

Entry test questions (3. measurement)

1. How do you connect a voltage and current meter to the measured two-pole? (Include schematic with generator and resistor.)
2. Describe the internal resistances of the ideal and real voltage meters!
3. Describe the internal resistances of the ideal and real current meters!
4. What does measurement range mean and how do you set it up when measuring an unknown quantity?
5. How do you set up the current limit on a laboratory power supply?
6. Draw and describe the characteristic curve of a laboratory power supply!
7. Give a voltage divider formula for calculating the voltage of one of the resistors out of three connected in series!
8. Draw its symbol and explain what is a potentiometer.
9. Give the current divider formula for calculating the current of one of the resistors out of two connected in parallel!
10. Define net resistance!
11. Give the net resistance formula for three resistors connected in series!
12. Give the net resistance formula for three resistors connected in parallel (using basic operations only)!

Entry test questions (4. measurement)

1. What is a potentiometer and what is its symbol?
2. Describe and draw the Thevenin model and a possible way of measuring the internal resistance!
3. Draw a sinusoidal time-voltage function, write its equation and show its important parameters on the graph!
4. Define effective voltage (RMS voltage) (a general definition applicable for any AC signal)!
5. Give a formula for a sinusoidal function with offset! Define the offset.
6. Give the formula connecting the peak and RMS value of a sinusoidal voltage! What is the RMS and peak voltage of the one-phase end-user AC network in Europe?