Excercise 1

1. Calculate the resistance for a wire, the length of which is 100m and the diameter is 0.2 cm, when the wire is made by
    a) copper
    b) silver
    c) gold
    d) iron

2. At the room temperature (25 ^{o}C) a resistance value is 1.5 kilo-ohms. Find the resistance value at the 70 ^{o}C, when TC is +100 ppm.

3. At the room temperature (25 ^{o}C) a resistance value is 2 kilo-ohms. At the 60 ^{o}C the value of this resistance is 2.1 kilo-ohms. Find the TC.

4. The current of a resistor is 2A, when it is connected to 10V source. Find the resistance of the resistor and the power dissipated in this resistor.

5. The current of a resistor is 2A, when it is connected to a 10V source. Find the current of the resistor, when the resistor is connected to a 15V source.

6. A lamp is connected to a 20V supply and the power dissipation of the lamp is then 15W. Calculate the power dissipation, when the lamp is connected to a 15V supply.

7. A lamp is connected to a supply. How much must we increase the supply voltage, if we want to double the power dissipation of the lamp?

8. You have a 10V source. You connect a lamp (10 ohms) to your source by using the wire, the diameter of which is 0.5 mm. What is the maximum possible distance between the lamp and the source, if the lamp requires at least 9.6V to guarantee a proper operation?

9. You have three resistors 2k2, 4k7 and 8k2. List (all) total resistance values you can get by combining these resistors in the different ways.