# Assignment

**ELECTROTECHNOLOGY**
**ELTK1100**
**QUIZ #1**
**SOLUTIONS**

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**1.** Complete the following table by converting as specified.

| | | | |
|---|---|---|---|
| **120 V** | ***0.12* kV** | ***$10^0$ to $10^3$*** | ***(0) - 3 = -3*** |
| **0.047 µF** | ***47,000* pF** | ***$10^{-6}$ to $10^{-12}$*** | ***(-6) - (-12) = 6*** |
| **10 mA** | ***0.01* A** | ***$10^{-3}$ to $10^0$*** | ***(-3) - 0 = -3*** |
| **450000000 mΩ** | ***0.45* MΩ** | ***$10^{-3}$ to $10^6$*** | ***(-3) - 6 = -9*** |

**2.** A resistor is coded as Blue, Green, Yellow, Gold. Convert this color code.

*650,000Ω, 5%*

**3.** In Question 2, what does the 4th band (Gold) represent. Provide it's definition and illustrate what it means for the resistor in Question 2.

*Tolerance - Maximum % deviation from color coded value.*

*650,000Ω ± 5% = 650,000Ω ± 32,500Ω = 617,500Ω to 682,500Ω.*

*The measured value of the resistor should be between 617.5kΩ and 682.5kΩ.*

**4.** Generate the color code for the following resistors:

| | | |
|---|---|---|
| 0.2 Ω, 10% | *Red, Black, Silver, Silver* | *0.20Ω* |
| 3.9 kΩ, 20% | *Orange, White, Red, No Color* | *3900Ω* |

**5.** A battery with an EMF of 1.5V causes a current of 120µA to flow through a resistor. What is the resistance of the resistor?

$$R = \frac{V_T}{I} = \frac{1.5\,V}{120\,\mu A} = 12{,}500\,\Omega = 12.5\,k\Omega$$