

# TI-RSLK

Texas Instruments Robotics System Learning Kit



# Module 2

Activity: Voltage, Current and Power



## Activity: Voltage, Current and Power

### Question 1

If a 1000 ohm resistor is placed in parallel with 2000 ohm resistor, what is the equivalence resistance of the two?

### Question 2

If a 1 k $\Omega$  resistor is placed in series with a 2 k $\Omega$  resistor, what is the equivalence resistance of the two?

### Question 3

5 volts is placed across a 1 k $\Omega$  resistor, how much current flows?

### Question 4

A 1 $\mu$ F capacitor has what reactance at 1 kHz?

### Question 5

A 1 volt AC signal, with a frequency of 1 MHz, is placed across a 1 nF capacitor. How much current will flow?

### Question 6

A 1 volt DC signal is placed across a 1 nF capacitor. How much current will flow?

### Question 7

A 10 k $\Omega$  resistor is placed in series with a 0.1  $\mu$ F capacitor. What is the cutoff frequency of this combination? What is the reactance of the capacitor at this frequency?

### Question 8

A resistor is placed in series with a 0.22  $\mu$ F capacitor. If you wish to set the cutoff frequency at 1 kHz, what resistor value should you choose?

### Question 9

The HLMP-4700 red LED runs at 1.7 V and 2 mA. The Luminous Efficacy is 150 lumens/watt. What is the brightness in lumens?

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
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