

Name \_\_\_\_\_ School \_\_\_\_\_ Contestant Number \_\_\_\_\_

**2013 Cowboy Classic**  
**Agricultural Technology and Mechanical Systems**  
**Electrical Systems – Wiring Skill**

The motor in the fan system of your greenhouse has recently quit working. In order to keep your plants healthy, you need to replace it as soon as possible. The new system that you have purchased requires a 220v circuit and for ease of use, must also be wired into a 50 amp receptacle. Please answer the following questions before you begin wiring. Once you have answered all of the questions, use the materials provided to wire the system into the breaker and switch.

1) What is the equation for Ohm's Law? (1 pt)

- a)  $I \times R = V$
- b)  $R \times I = V$
- c)  $V / I = R$
- d)  $V / R = I$

2) Please define voltage, amperage and ohms. (3 pts)

Voltage:

Amperage:

Ohms:

3) According to the label, what is the AC Current Input for 220v? (1 pt)

6 A

4) From the information provided on the label, please calculate the safe circuit load for this system. Remember, safe operation occurs with 80% or less of circuit capacity being used.  $A \times V = W$  (2 pt)

5) Which of the following ways can Ohm's Law be expressed? (Circle all that apply)(3 pts)

a)  $V = R I$

b)  $V = P / I$

c)  $V = (P R)^{1/2}$

6) Using the information found on the label, can you calculate the Ohms for this system? If yes, please do so below. If no, please explain why. (4 pts)

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Total Output							
AC Input Voltage	115/230 V	Max Output Current	+5V	+3.3V	+12V	-12V	+5vsb
			24 A	24 A	41 A	0.5 A	2.5 A
AC Input Frequency	60/50 Hz	Max Combined Wattage	575 W				
AC Input Current	10 A (115V)						
	6 A (230V)						

Criterion	Points possible	Points earned
Questions	14	
Wiring of Breaker	5	
Wiring of Switch	5	
Safety	6	
<b>Total</b>	30	