Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date \_\_\_/\_\_\_/\_\_\_\_

**Answer Key: Electrical Power Exam #1**

**I.** **Match the terms to the correct definitions.**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Electrical power | **D** | **A** 1,000 watts |
| 2. | Watt | **C** | **B** Energy, in kilowatts, multiplied by the |
|  |  |  | time in hours |
| 3. | Kilowatt | **A** | **C** The unit of measurement for power |
| 4. | Kilowatt hours | **B** | **D** The rate of doing work by electrons |
|  |  |  | moving through a resistive circuit |

**II. Match the symbols or abbreviations with their correct definition.**

|  |  |  |  |
| --- | --- | --- | --- |
| 5. | Fuse | **B** | **A** The rate of doing work |
| 6. | Circuit breaker | **D** | **B** An electrical device which protects a circuit from |
|  |  |  | excessive power or current |
| 7. | Power | **A** | **C** Measured in foot-pounds without any reference |
|  |  |  | to time |
| 8. | Work | **C** | **D** An electrical switch which protects a circuit form |
|  |  |  | excessive power or current |

* 1. Find the power, given that the total load for the circuit is 455Ω and the applied voltage is 40 volts.

**A 3.516 W**

**B** 35.164 W

**C** 5.18 W

**D** .88 W

1. What is the power in a circuit with the following closed loop condition: the current is 32.5 mA, the circuit of four loads different resistance values, and the applied voltage is 32.5 volts?

**A** 1000 W

**B** 2 W

**C 1.056 W**

**D** .965 W

1. If the following circuit has RT = 24000Ω with an applied voltage of 25 volts, what is the power of this circuit?

**A** 2.6 W

**B** 1.524 W

**C 26 mW**

**D 5.2 mW**

1. Solve for unknown power when I = 2 milliamps and R = 3 kilo-ohms. P=\_\_\_\_

**A** 12 W

**B** 1.5 W

**C 12 mW**

**D** .15 W

1. Solve for unknown power when V = 110 volts and I = 2 amperes. P=\_\_\_\_\_

**A** 50 W

**B** 18.18 W

**C 220 W**

**D** 55 W

1. Solve for unknown power when I = 16 milliamps and R = 8 megaohms. P=\_\_\_\_

**A 2048 W**

**B** 20.48 W

**C** .509 W

**D** 509 W

1. Solve for unknown power when V=22 volts and I=2mA. P=\_\_\_\_\_

**A** 4.4 W

**B 44 mW**

**C** 1.1 W

**D** 11 W

1. What is the power in a circuit with the following closed loop circuit condition: the current is 325 mA, the circuit of four loads has different resistance values, and the applied voltage is 120 volts?

**A** 44.5 W

**B** 36.9 W

**C 39 W**

**D** 55.4 W

1. Find the unknown variable for power when these values are given: applied voltage is 12 volts and the total resistance is 5.60 MΩ.

**A** 25.7 mW

**B 25.7µW**

**C** 2.1 µW

**D** 17.6 mW

1. Find the unknown variable when these values are given: current is 6 µA and the total resistance is 560 MΩ.

**A 2 mW**

**B** 17.6 W

**C** 11.2 mW

**D** 5.66 W

**IV. Arrange in proper sequence the following procedure for power measurement using a DC wattmeter.**

**Use letters A-E, where A represents Step 1 and E represents Step 5.**

1. **D (Step 4)** Read and record power value in watts indicated on wattmeter.
2. **C (Step 3)** Turn on circuit power.
3. **B (Step 2)** Connect the voltage (E) terminals of wattmeter across load with power off.
4. **E (Step 5)** Turn off circuit power and disconnect wattmeter.
5. **A (Step 1)** With circuit power turned off, connect the current (I) terminals of wattmeter inseries with circuit load.
6. **Select the correct answer.**
   1. Which of the following is a true statement concerning resistor wattage rating? **A** Most resistors do not have a wattage rating.

**B** A wattage safety factor of 1 should be used when choosing resistors.

**C The wattage ratting indicates the maximum amount of power that a resistor can handle before it burns up.**

**D** Smaller wire wound resistors are capable of dissipating the heat generated by higher powerlevels.

* 1. Which of the following statements is a correct statement relative to either direct or inverse proportion.

**A** A directly proportional relationship is one by which a change in one quantity produces theopposite direction of change in another quantity.

**B** An inversely proportional relationship is one by which a change in one quantity produces noeffect on another quantity.

**C** An inversely proportional relationship is one by which a change in one quantity produces thesame direction of change in another quantity.

**D A directly proportional relationship is one by which a change in one quantity produces the same direction of change in another quantity.**