

6 Power Dissipation

Two resistors have the same resistance but are different physical sizes.

When the same constant voltage is applied across both resistors

1. The two resistors will be at the same temperature.
2. The physically larger resistor will be at a higher temperature.
3. The physically larger resistor will be at a lower temperature.
4. The smaller resistor will cool below ambient temperature and the larger resistor will heat up above ambient temperature.

6 Power Dissipation

When the voltage across a resistance is doubled, will the power dissipated

1. Increase by a factor of two
2. Decrease by a factor of two
3. Increase by a factor of four
4. Decrease by a factor of four
5. Increase by a factor less than four
6. None of the above

6 Power Dissipation

A resistance has been constructed so that the resistance does not change with temperature.

When a constant voltage is applied across the resistance, will the power dissipated

1. Increase smoothly up to the operating value and then remain constant.
2. Initially increase and then decrease to the operating value.
3. Jump very rapidly to the operating value and then remain constant.

The resistance of a metallic conductor increases as the temperature increases.

When a light bulb is turned on, will the power dissipated

1. Increase smoothly up to the operating value and then remain constant.
2. Initially increase and then decrease to the operating value.
3. Jump very rapidly to the operating value and then remain constant.