What is Electric Power?

Worksheet

Electric power is the rate of electrical energy transfer: P = VI, measured in watts (W). It can also be written as P = IR or P = V/R using Ohm's law.

P = VI

Questions

1. A device uses 220 V and draws 3 A. What is its power?

A) 660 W
B) 73.3 W
C) 223 W
D) 217 W

2. Which formula for power uses resistance directly with current?

A) P = V/I
B) P = IR
C) P = V+I
D) P = I/R

3. What is the SI unit of electric power?

A) Joule
B) Volt
C) Watt
D) Ampere

4. A 60 W bulb operates at 12 V. What current does it draw?

A) 0.2 A
B) 5 A
C) 720 A
D) 48 A

5. A lamp is connected to a 220 V mains supply and draws a current of 0.5 A. Find its power.

6. An electric heater rated at 1000 W is plugged into a 220 V outlet. Find the current it draws.

7. A motor coil has resistance 5 and carries a current of 2 A. Find the power dissipated.

8. Define: What is the formula for electric power?

9. Define: What is the unit of electric power?

10. Define: How do you find power using resistance?

Answer Key

1. A) 660 W - P = VI = 2203 = 660 W.
2. B) P = IR - From Ohm's law, P = IR.
3. C) Watt - Power is measured in watts (joules per second).
4. B) 5 A - I = P/V = 60/12 = 5 A.
5. P = V I P = 220 0.5 P = 110 W
6. P = V I I = P/V I = 1000/220 I 4.55 A
7. P = IR P = 2 5 P = 4 5 = 20 W
8. P = V I, where P is in watts, V in volts, I in amps.
9. The watt (W), equal to one joule per second.
10. P = IR or P = V/R, derived from Ohm's law V = IR.