



### ENERGY & POWER PRACTICE CALCULATION QUESTIONS

- ① Calculate the electric power used by the following:
  - a) A 240V toaster that draws 1.5A of current
  - b) A 240V heater that draws 8.3A
  - c) A radio that runs on 6V and draws 150mA of current
- ② How much energy (in joules) would a 100W light bulb consume in one day?
- ③ If it takes 350kJ of energy to boil 1L of water, how long will it take a 5kW kettle to boil this much water?
- ④ What is the resistance of a 240V television if it uses 75W of power?
- ⑤ The voltage drop across a resistor is  $2.0 \times 10^2$  V. The current passing through the resistor is 5A. What is the rate of energy dissipation?
- ⑥ Calculate power given that 2.0A passes through a  $0.25 \Omega$  resistor
- ⑦ Calculate power if the voltage drop across a  $5 \Omega$  resistor is  $1.0 \times 10^2$  V.
- ⑧ Two resistors ( $R_1 = 2 \Omega$  and  $R_2 = 3 \Omega$ ) are connected in series to a  $1.0 \times 10^2$  V power supply. What is the power generated by the power supply and the rate of energy dissipation in each resistor? (Hint: draw the circuit)
- ⑨ Two resistors ( $R_1 = 4 \Omega$  and  $R_2 = 3 \Omega$ ) are connected in parallel to a 12V power supply. What is the power generated by the power supply and the power dissipated in each resistor? (Hint: draw the circuit).
- ⑩ How much energy does a: (answer in kWh).
  - a) 3kW heater use in 6 hours?
  - b) 100W light bulb use in 8 hours?