

## **AQA GCSE Physics: Power Calculations Worksheet (Work, Energy, Time)**

### **Question 1: The Speedy Lift**

A crane lifts a 500 kg load to a height of 20 meters in 10 seconds.

- Calculate the power of the crane.

### **Question 2: The Bright Bulb**

A light bulb transfers 600 J of energy every second.

- Calculate the power of the light bulb.

### **Question 3: The Sprinting Athlete**

An athlete with a mass of 70 kg sprints 100 meters in 10 seconds. (Assume the work done is equal to the athlete's gain in kinetic energy).

- Calculate the power output of the athlete during the sprint.

### **Question 4: The Efficient Motor**

An electric motor does 10,000 J of work in 5 seconds.

- Calculate the power of the motor.

### **Question 5: The Climbing Cyclist**

A cyclist does 50,000 J of work to cycle up a hill in 2 minutes.

- Calculate the power output of the cyclist.

### **Question 6: The Powerful Kettle**

A kettle has a power rating of 2000 W. It takes 120 seconds to boil some water.

- Calculate the energy transferred by the kettle to the water.

### **Question 7: The Lifting Machine**

A machine lifts a 100 kg object 5 meters in 2 seconds. (Assume gravitational field strength = 9.8 N/kg)

- Calculate the power of the machine.

### **Question 8: The Energy-Saving Appliance**

An energy-saving appliance has a power rating of 100 W. It is used for 30 minutes.

- Calculate the energy transferred by the appliance.

### **Question 9: The Human Heart**

The human heart pumps blood with an average power of about 1.3 W.

- How much work does the heart do in one day?

**Question 10: The Stair Climb**

A person with a mass of 60 kg climbs a flight of stairs 3 meters high in 10 seconds. (Assume gravitational field strength = 9.8 N/kg)

- Calculate the person's power output during the stair climb.