

# **Class 10 Physics – Quick Notes**

## **Chapter: Work, Energy and Power**

### **1. Work**

Work is said to be done when a force produces displacement in the direction of force.

**Formula:**  $W = F \times s$

### **2. Types of Work**

- 1 Positive Work – Force and displacement in the same direction
- 2 Negative Work – Force and displacement in opposite directions
- 3 Zero Work – No displacement or force perpendicular to displacement

### **3. Energy**

Energy is the capacity to do work.

**SI Unit:** Joule (J)

### **4. Kinetic Energy**

Energy possessed by a body due to its motion.

**Formula:**  $KE = \frac{1}{2}mv^2$

### **5. Potential Energy**

Energy possessed by a body due to its position or configuration.

**Formula:**  $PE = mgh$

### **6. Mechanical Energy**

Sum of kinetic and potential energy.

**Formula:** Mechanical Energy = KE + PE

### **7. Law of Conservation of Energy**

Energy can neither be created nor destroyed; it can only change its form.

### **8. Power**

Power is the rate of doing work.

**Formula:**  $P = W / t$

**SI Unit:** Watt (W)

### **9. Commercial Unit of Energy**

Electrical energy is measured in kilowatt-hour (kWh).

$$1 \text{ kWh} = 3.6 \times 10^6 \text{ J}$$

## 10. Key Exam Points

- 1 Work and energy are scalar quantities
- 2 Power can be average or instantaneous
- 3 Kinetic energy depends on square of velocity
- 4 Potential energy depends on mass and height