

Answer Key (Energy Practice Test)

Section 1: Definitions (10 marks)

1. Energy is the ability to do work.
2. Kinetic energy is the energy of motion. An example is a moving car. Potential energy is stored energy due to position or configuration. An example is a book sitting on a shelf.
3. The Law of Conservation of Energy states that energy cannot be created or destroyed, only transferred or transformed from one form to another.
4. Efficiency is the ratio of useful energy output to the total energy input. It is calculated by dividing the useful energy output by the total energy input and multiplying by 100 to express it as a percentage.
5. Specific heat capacity is the amount of heat energy required to raise the temperature of 1 kg of a substance by 1 degree Celsius. Its units are $\text{J/kg}^\circ\text{C}$.
6. Thermal energy is the total kinetic energy of the particles in a substance, while heat is the transfer of thermal energy from one substance to another due to a temperature difference.

Section 2: Calculations (41 marks)

1. **50 J**
2. **20,580 J**
3.
 - **30.9J**
4. **80 J**
5. **30 m/s**
6. **5 m**
7. **2 m/s**
8.
 - **2.94 J**
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9. **12,320 J**
10. **20%**
11. **34.5%**
12. **23%**
13. **900 $\text{J/kg}^\circ\text{C}$**
14. **500 $\text{J/kg}^\circ\text{C}$**
15. **225 $^\circ\text{C}$**