

Physics 173, Physics of Sustainable Energy

Quiz 1, 1pm Thurs Sept 5, 2024

Each question has one correct answer.

1. Brenda throws a package from the front porch of her house up through the second floor window where it is caught by her brother. Which of the following energy transformations have occurred in this process?
(A) thermal energy of the package to gravitational potential energy of Brenda's body
(B) kinetic energy of the package to gravitational potential energy of the package
(C) gravitational potential energy of the package to chemical energy of the package
(D) electrical energy in the wiring of the house to chemical energy in Brenda's body
2. The main reason why gasoline is so widely used is
(A) it explodes when shaken sufficiently strongly
(B) it does not need oxygen in order to burn
(C) there is a lot of energy per gram in gasoline
(D) it is safe to handle and ingest
3. When we say sugar "contains" about 4 Cal per gram, we mean
(A) it takes that much energy to vaporize a gram of sugar
(B) that is the thermal energy of sugar molecules at room temperature
(C) that is the amount of useful work a human body can do using the energy from a gram of sugar
(D) that is the energy released when sugar is burned to CO_2 and H_2O
4. An iPad battery can store about 40 Watt-hours (Wh) of energy. When you plug it in to a wall socket to charge, it takes electricity which costs about 10¢ per kiloWatt-hour. What is the cost of the electricity needed to take the battery from empty to fully charged?
(A) 0.4¢ (B) \$2.50 (C) 4¢ (D) 0.25¢