Honors Physics **Quiz 5a: Work, Energy, and Impulse** **Mr. Kelley**

$W = F \cdot d \cdot (\cos\theta)$ $\quad$ $\text{KE} = \frac{1}{2}mv^2$ $\quad$ $\text{PE} = mgh$ $\quad$ $I = \Delta\rho = F \cdot t$ $\quad$ $P = \frac{W}{t} = \frac{E}{t}$

1. The concept of impulse is usually used to understand:

   (a) A change in force

   (b) A change in acceleration

   (c) A change in momentum

   (d) A change in energy

2. When work is done on a system, we can most easily understand:

   (a) A change in force

   (b) A change in acceleration

   (c) A change in momentum

   (d) A change in energy

3. A racquetball is traveling at 34 m/s when it strikes a wall and rebounds at 26 m/s. If the ball weighs .05 kg, what impulse does the wall provide to the ball?

   (a) 3 kg·m/s

   (b) 0.4 kg·m/s

   (c) 3.9 kg·m/s

   (d) 12 kg·m/s

4. A 50 kg cart starts from rest and rolls 100 m down a hill at $\theta = 30°$. After the 100 m, the cart is moving with a speed of 25 m/s. About how much energy was lost to friction? (Use g = 10 m/s^2)

   (a) 9375 J

   (b) 200 J

   (c) 12450 J

   (d) 2545 J

5. How much energy does a 60 W light bulb radiate in one hour?

   (a) 1 J

   (b) 60 J

   (c) 3600 J

   (d) 216000 J