

Physics Quiz — Chapter 11: Energy and Power

Monadi, Winter 2026, Physics 122-07

Name: _____

Date: _____

A student climbs a vertical staircase of height $h = 20$ m at a steady pace. The student's mass is $m = 70$ kg, and the climb takes 70 s. Assume $g = 10$ m/s².

- (a) How much **gravitational potential energy** does the student gain during the climb? $U_g = mgh$

- (b) The human body is not perfectly efficient. If only **25%** of the chemical energy from food is converted into mechanical energy, what is the **rate at which chemical energy** is being used during the climb?