UNIT V WORKSHEET 6(H): ENERGY CONSERVATION OF ENERGY

Model <u>each</u> problem with an energy bar graph/flow diagram. Choose your system in a fashion that makes visible the variables that are identified in each problem. Use the energy bar graph/flow diagram to create an algebraic relationship between the energy storage mechanisms. <u>Use</u> the derived relationship (<u>conservation of energy</u>) to solve the problem.

1. a. A mass is released from rest down an incline from a vertical height H. Show that the maximum possible speed of the mass upon reaching the bottom of the ramp is $v=\sqrt{2gH}$

b. Assume that 35% of the energy in the system is stored internally while sliding down the ramp. Show that the speed of the mass upon reaching the bottom of the ramp is $v = \sqrt{1.3gH}$