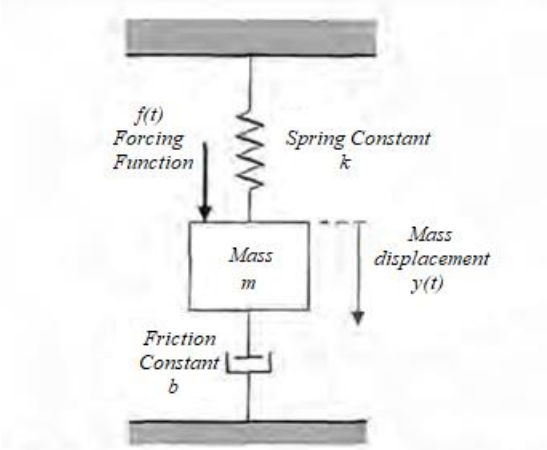
Mechanical SMD System

Consider the mechanical system depicted in figure. The input is given by *f(t)* and the output is *y(t).* Create a Simulink model for the mechanical SMD System such that it will plot the system response to a unit step input.
Let m = 10Kg, k = 1N/m, and b = 0.5N-sec/m. Show that the peak amplitude of the output is about 1.8 i.e., initial condition y (0) =1.8.



Equations-

$$m\frac{d^2y(t)}{dt^2} + b\frac{dy(t)}{dt} + ky(t) = f(t)$$

Instructions for modelling-

1. While giving names to blocks, rename gains as **Gain1, Gain2, …from top to bottom** and Integrators as **Integrator1, Integrator2… from left to right**.

2. Use **only** calculated value for the gain blocks rather than assigning it to a variable.