

## Problem 11

A spring is stretched 10 cm by a force of 3 N. A mass of 2 kg is hung from the spring and is also attached to a viscous damper that exerts a force of 3 N when the velocity of the mass is 5 m/s. If the mass is pulled down 5 cm below its equilibrium position and given an initial downward velocity of 10 cm/s, determine its position  $u$  at any time  $t$ . Find the quasi frequency  $\mu$  and the ratio of  $\mu$  to the natural frequency of the corresponding undamped motion.