University of British Columbia
Department of Mechanical Engineering

MECH366 Modeling of Mechatronic Systems
Homework 6

Due: November 12 (Tuesday), 2019, 6pm

Consider 2-DOF mass-spring-damper system in the figure below, where k [N/m] is the linear spring constant, b_1 [Ns/m] and b_2 [Ns/m] are viscous friction coefficients (between masses and ground), and b_3 [Ns/m] is the damping coefficient.

Obtain the transfer function:

1. from the input force f to the output displacement y_1.
2. from the input force f to the output acceleration $\ddot{y}_2$.
3. from the input force f to the output (displacement difference) $y_1 - y_2$.
4. from the input displacement y_2 to the output displacement y_1.
5. from the input displacement y_1 to the output displacement y_2.