**WEEK1:**

Problem 1: (50 points) A dynamic vibration absorber is shown in Figure 1. This system is representative of many situations involving the vibration of machines containing unbalanced components. The parameters M2 and k12 maybe chosen so that the main mass M1 does not vibrate in the steady state when F(t) = 2 \* sin (10 \* t) Obtain the differential equations describing this system. Simulate this system for 10 seconds. M1 = 100. K1 = 50. b = 50. Find the optimal value for M2 and k12 so that M1 does not vibrate.

