Problem 2: (50 points) The suspension system for one wheel of an old-fashioned pickup truck is illustrated in figure 2. The mass of the vehicle is m1 and the mass of the wheel is m2. The suspension spring has a spring constant k1 and the tire had the spring constant k2. The damping constant of the shock absorber is b. Obtain the mathematical model which represent the vehicle response to bump in the road and simulate it for 100 sec. Create a dummy input signal to represent the bumpy road using MATLAB program.

