**SIMPLE HARMONIC MOTION Name**

1) A 1.0x 103kg car bounces up and down on its springs once every 2.0s. What is the effective spring constant of

its springs? (1)

2) A force of 2.0N is used to push a 1.0x102g jack-in-the-box into its box, which compresses the spring a total of

10.cm. What will be the maximum speed of the jack-in-the-box when it pops out? (2)

3) A toy rifle employs a spring whose force constant is 200N/m. In use the spring is compressed 50mm and when

released it launches a 5g rubber ball. What is the ball’s speed when it leaves the rifle? (1)

4) The work needed to compress a spring by 40mm is 0.88J. What is the constant for this spring? (1)

5) A 1.00x102g mass is suspended from a spring whose constant is 50.0n/m. The mass is pulled down 1.00cm and

then released. A) What is the amplitude of the resulting oscillations? (None) B) What is the frequency? (2)

6) A spring has a 1.00s period when a 20.0N weight is suspended from it. Find the elongation of the spring when

a 50.0N weight is suspended from it. (3)