

F2009 Exam 2 Solutions

1-1)B

1-2)D

1-3)C

1-4)A

1-5)C

2 (a) $8 \frac{m}{s^2}$ 2 (c) $\mu_s = 0.816$ 2 (e) $\theta = 39.2^\circ$ 3 (a) $v = 44.27 \frac{m}{s}$ 3 (b) $W_f = -37.1 kJ$ 3 (c) $\theta = 24.8^\circ$ 4 (a) $k = 47,824 \frac{N}{m}$ 4 (b) $v = 15.33 \frac{m}{s}$ 4 (c) $W_s = 956.48 J$ 4 (d) $W_g = -940.8 J$ 4 (e) $\Delta y = 0.173 m$

S2010 Exam 2 Solutions

1-1)B

1-2)D

1-3)-78.4N

1-4)4

1-5)262,000J

2 (a) $T=8s$, $f=0.125Hz$ 2 (b) $v_T = 3.92 \frac{m}{s}$ 2 (c) $a_c = 3.08 \frac{m}{s^2}$, $F_c = 92.5 N$ 2 (d) $\mu_s = 0.315$ 3 (b) $\vec{F}_N = 36.24 N$ 3 (c) $a = 3.84 \frac{m}{s^2}$ 3 (d) $W_N = 0$ 4 (a) $v = 12.52 \frac{m}{s}$ 4 (b) $E_B = \frac{1}{2} m v_B^2$, $E_C = \frac{1}{2} k \Delta x_{\max}^2 - m g x_{\max} \sin \theta$ 4 (c) $x_{\max} = 1.62 m$ 4 (d) $W = -262.3 J$