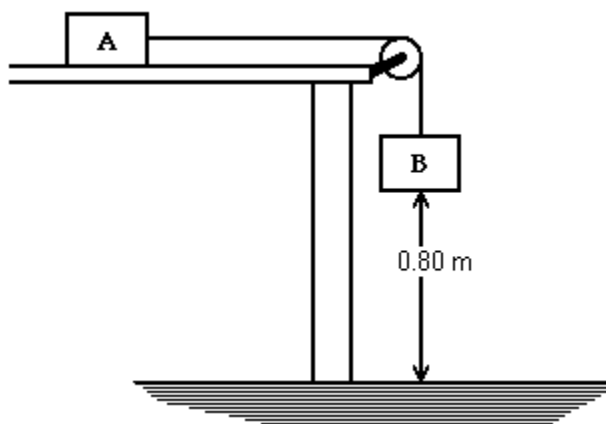


Physics 1A– 8 AM class
Quiz # 3 Nov. 16, 2007
Prof. Jose Onuchic

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) A spring with a spring constant of 400 N/m is compressed 2 cms. How much energy does it store?
A) 0.02 J B) 0.42 J C) 5.60 J D) 0.08 J E) 1.22 J
- 2) A 20-N crate starting at rest slides down a rough 5.0-m long ramp, inclined at 25° with the horizontal. 20 J of energy is lost to friction. What will be the velocity of the crate at the bottom of the incline?
A) 0.98 m/s B) 1.9 m/s C) 3.2 m/s D) 4.7 m/s E) 6.0 m/s

Figure 1



- 3) In Figure 1, A 9.0-kg hanging weight (B) is connected by a string over a pulley to a 5.0-kg block (A) sliding on a flat table. If the coefficient of sliding friction is 0.20, find the tension in the string.
A) 19 N B) 24 N C) 32 N D) 38 N E) 45 N
- 4) A 2 000-kg ore car rolls 50.0 m down a frictionless 10° incline. If there is a horizontal spring at the end of the incline, what spring constant is required to stop the ore car in a distance of 1.00 m?
A) 340 kN/m B) 681 kN/m C) 1320 kN/m D) 980 kN/m E) 1960 kN/m
- 5) A 200-N crate rests on an ramp; the maximum angle just before it slips is 25° with the horizontal. What is the coefficient of static friction between crate and ramp surfaces?
A) 0.11 B) 0.21 C) 0.29 D) 0.38 E) 0.47
- 6) A horizontal force of 100 N is applied to move a 45-kg cart across a 9.0-m level surface. What work is done by the 100-N force?
A) 405 J B) 500 J C) 900 J D) 2,000 J E) 4,500 J

- 7) A simple pendulum, 2.0 m in length, is released with a push when the support string is at an angle of 25° from the vertical. If the initial speed of the suspended mass is 1.2 m/s when at the release point, what is its speed at the bottom of the swing? ($g = 9.8 \text{ m/s}^2$)
- A) 2.3 m/s B) 2.6 m/s C) 2.0 m/s D) 1.2 m/s E) 0.5 m/s
- 8) A girl and her bicycle have a total mass of 40 kg. At the top of the hill her speed is 5.0 m/s. The hill is 10 m high and 100 m long. If the force of friction as she rides down the hill is 20 N, what is her speed at the bottom?
- A) 10 m/s
B) 7 m/s
C) 9 m/s
D) 11 m/s
E) She stops before she reaches the bottom

Answer Key

Testname: QUIZ3AA.TST

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) D
- 2) D
- 3) D
- 4) A
- 5) E
- 6) C
- 7) A
- 8) D