NOTE: All Problems are worth 4 points each.
IMPORTANT: You must put the correct letter in the space provided to obtain credit.
No partial credit is assigned multiple choice problems. **You have 15 minutes for this quiz.**
This is an “OPEN HOMEWORK” quiz, you may refer to your written homework only.

1. Ref: Ch. 6, Q-24: “When a “superball” is dropped, can it rebound to a height greater than its original height?”
   If instead of being dropped from rest, the ball is thrown down from the initial height (h) with enough velocity that the kinetic energy matches the potential energy at the release height. To what height does the ball now rise?

   **ANS**
   (a) 4 h
   (b) 1 h
   (c) 2 h
   (d) 2.4 h
   (e) 1.4 h

2. Ref Ch. 6, P-22: “An 80 g arrow is fired from a bow whose string exerts an average force of 95 N on the arrow over a distance of 80 cm. What is the speed of the arrow as it leaves the bow?”
   If instead of 80 cm, the force were applied over a distance of 100 cm, what would the speed of the arrow leaving the bow now be?

   **ANS**
   (a) 46.2 m/s
   (b) 43.6 m/s
   (c) 48.7 m/s
   (d) 44.9 m/s
   (e) 51.1 m/s

3. Ref Ch. 6, P-44: “A small mass m slides without friction along a looped apparatus. If the object is to remain on the track, even at the top of the circle (whose radius is r), from what minimum height h must it be released?”
   Suppose now that the mass goes fast enough at the top of the circle that the normal force of the track on the mass is equal to the force of gravity on the mass at that point in the trajectory. What would the release height now be?

   **ANS**
   (a) 2.5 r
   (b) 4.0 r
   (c) 3.0 r
   (d) 4.5 r
   (e) 3.5 r
4. **WORKOUT PROBLEM:** A 1 kg mass initially sliding 5 m/s stops because of friction after traveling 50 meters. What is the magnitude of the frictional force?

ANS _____

(a) .25 N  
(b) .75 N  
(c) .625 N  
(d) .50 N  
(e) .375 N

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5. **WORKOUT PROBLEM:** A 1 kg ball is thrown down from a 25 m tall building with a speed of 10 m/s. What is the balls speed just before striking the ground?

ANS _____

(a) 17.2 m/s  
(b) 24.3 m/s  
(c) 15.7 m/s  
(d) 22.1 m/s  
(e) 19.7 m/s  
(f) 14.0 m/s