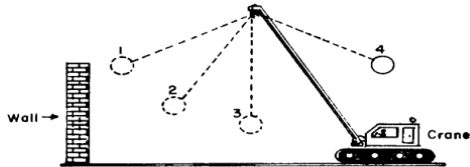1. The wrecking crane shown below is moving toward a brick wall which is to be torn down.

At what point in the swing of the wrecking ball should the ball make contact with the wall to make a collision with the greatest kinetic energy?

(1) 1   (3) 3
(2) 2   (4) 4

2. A force is applied to a block, causing it to accelerate along a horizontal, frictionless surface. The energy gained by the block is equal to the
(1) work done on the block
(2) power applied to the block
(3) impulse applied to the block
(4) momentum given to the block

3. As an object falls freely, the kinetic energy of the object
(1) decreases   (3) remains the same
(2) increases

4. A 10.-kilogram mass falls freely a distance of 6.0 meters near the Earth's surface. The total kinetic energy gained by the mass as it falls is approximately
(1) 60. J   (3) 720 J
(2) 590 J   (4) 1,200 J

5. As a ball falls freely (without friction) toward the ground, its total mechanical energy
(1) decreases   (3) remains the same
(2) increases

6.
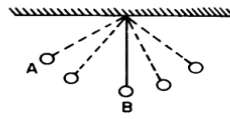
As the pendulum swings from position *A* to position *B* as shown in the diagram above, what is the relationship of kinetic energy to potential energy? [Neglect friction.]
(1) The kinetic energy decrease is more than the potential energy increase.
(2) The kinetic energy increase is more than the potential energy decrease.
(3) The kinetic energy decrease is equal to the potential energy increase.
(4) The kinetic energy increase is equal to the potential energy decrease.

7. A 0.50-kilogram ball is thrown vertically upward with an initial kinetic energy of 25 joules. Approximately how high will the ball rise? [Neglect air resistance.]
(1) 2.6 m   (3) 13 m
(2) 5.1 m   (4) 25 m