1. I have completed reading Chapter 8, "Conservation of Energy," or its equivalent. (a) True, (b) false.

2. A car accelerates uniformly from rest to a speed of 100 km/hr. Assume that air drag and frictional dissipation of energy are negligible. The power utilized in accelerating the car is (a) greatest just as the car begins to move, (b) greatest when the car's speed is 50 km/hr, (c) greatest just an instant before the car reaches 100 km/hr, (d) constant throughout the entire acceleration process.

3. The total amount of energy in a system which is truly isolated cannot change. (a) True, (b) false.

4. Two identical cars are traveling on the same road. Car A is traveling at 60 mph, Car B is traveling at 30 mph. At the same instant, the driver of each car locks his/her car's brakes. In the ensuing skids (a) each car will travel about the same distance before coming to rest. (b) Car A will skid about \( \sqrt{2} \) times as far as car B before coming to rest. (c) Car A will skid about 2 times as far as car B before coming to rest. (d) Car A will skid about 4 times as far as car B before coming to rest. (These are old enough cars that it is possible to lock their brakes.)

5. If you had a perfectly efficient electric motor driving a perfectly efficient lifting device, to about what height above its initial level could you lift a 100-kg weight (» 220 lbs) for 1¢, using electricity purchased from Provo City Power (rate » 9¢ / kWh)? (a) 1.34 feet, (b) 13.4 feet, (c) 134 feet, (d) 1,340 feet, (e) 13,400 feet. (Possibly useful conversion factors: 1 joule = 0.738 ft·lbs = 2.78×10^-7 kw·hrs = 0.239 cal, 1 m = 3.28 ft.)

6. You are standing on an apartment deck, about to throw a ball to your friend in the parking lot below. You want the ball to have as high a speed as possible when your friend catches it. Besides directing your friend where to stand and throwing the ball as hard as possible, you should (a) direct your throw steeply upward, (b) direct your throw nearly horizontally, (c) direct your throw downward, (d) the direction of your throw makes no difference. (Assume the energy loss to drag forces is negligible.)

7. If the energy loss to drag forces in question 7 is actually appreciable, what is the correct answer?