### Quiz 2--PHYS 151--S13

**Multiple Choice**  
*Identify the choice that best completes the statement or answers the question.*

<table>
<thead>
<tr>
<th>Question</th>
<th>Choice (A)</th>
<th>Choice (B)</th>
<th>Choice (C)</th>
<th>Choice (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emilie du Chatelet rocked the scientific world by showing...</td>
<td>a. Kinetic energy is proportional to velocity squared</td>
<td>b. A body at rest tends to stay at rest</td>
<td>c. F=ma</td>
<td>d. Potential energy and kinetic energy are the same</td>
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<tr>
<td>2. Which of these is true for thermal energy?</td>
<td>a. it often arises because of friction between 2 substances</td>
<td>b. it is proportional to the temperature of the material</td>
<td>c. it is associated with the random kinetic energy of the particles in the material</td>
<td>d. all of these</td>
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<td>3. BMR, when referring to the human body, is an abbreviation for:</td>
<td>a. blood metabolic rate</td>
<td>b. borted metastatic rate</td>
<td>c. basal metabolic rate</td>
<td>d. basic mastery regurgitation</td>
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<tr>
<td>4. You throw a ball with mass 2 kg up with a speed of 10 m/s. How high does it go?</td>
<td>a. 5 m</td>
<td>b. 0.5 m</td>
<td>c. 10 m</td>
<td>d. 20 m</td>
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<td>5. You throw a ball up in the air. Which of these statements best describes the energy of the ball at the top of the trajectory?</td>
<td>a. The ball has no kinetic energy and maximum potential energy.</td>
<td>b. The ball has no potential energy and maximum kinetic energy.</td>
<td>c. The ball has neither kinetic energy nor potential energy.</td>
<td>d. The ball’s kinetic and potential energies are at their maximum.</td>
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<tr>
<td>6. A closed system is one where...</td>
<td>a. the system does not move.</td>
<td>b. objects within the system do not move.</td>
<td>c. the potential energy of the system does not increase.</td>
<td>d. energy neither leaves nor enters the system.</td>
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<td>7. You use 200 kcal while climbing a mountain in Nepal. How many grams of carrots will you need to eat to provide enough energy for this work?</td>
<td>a. 80 g</td>
<td>b. 500 g</td>
<td>c. 130 g</td>
<td>d. 200 g</td>
</tr>
<tr>
<td>8. While your body is resting, which of these organs uses the most amount of energy?</td>
<td>a. heart</td>
<td>b. skeletal muscles</td>
<td>c. kidney</td>
<td>d. brain</td>
</tr>
</tbody>
</table>
9. Newton’s First Law is a description of which of these properties?
   a. acceleration
   b. action-reaction
   c. forces
   d. inertia

10. Why does your car lurch forward just before coming to a stop?
   a. the brakes let off of the rotor just before stopping
   b. static frictional force is larger than kinetic frictional force
   c. static frictional force is smaller than kinetic frictional force
   d. the Anti-lock braking system causes this to happen for safety

11. What net force must be exerted on a 10 kg object to cause it to have an acceleration of 2 m/s²?
   a. 5 N
   b. 0.2 N
   c. 200 N
   d. 20 N

12. An apple has a weight of 1 N. What is its mass in kilograms?
   a. 0.1 kg
   b. 1 kg
   c. 10 kg
   d. 2 kg

13. Consider these vectors. Which of these represents the vector for A+B?

   a. 
   b. 
   c. 
   d. 

14. What frictional force does a 100 kg person experience when ice skating (steel skates on ice)?
   a. 3
   b. 20
   c. 400
   d. 10

15. This figure shows a traction system. A mass of m=2kg is used. What is the force applied to the patient’s leg?
   a. 0.2 N
   b. 1.5 N
   c. 20 N
   d. 2 N
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Answer Section

MULTIPLE CHOICE

1. ANS: A  PTS: 1
2. ANS: D  PTS: 1
3. ANS: C  PTS: 1
4. ANS: A  PTS: 1
5. ANS: A  PTS: 1
6. ANS: D  PTS: 1
7. ANS: B  PTS: 1
8. ANS: D  PTS: 1
9. ANS: D  PTS: 1
10. ANS: B  PTS: 1
11. ANS: D  PTS: 1
12. ANS: A  PTS: 1
13. ANS: D  PTS: 1
14. ANS: B  PTS: 1
15. ANS: C  PTS: 1