Physics
Work, Form: A

Name: _____
Date: _____
Period: _____
Primary Peer Reviewer: _____

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Section 1. Multiple Choice

1. You push against a wall with a force of 15 N for a time of 3 seconds, but the wall does not move. What is the amount of work done in this situation?
   (a) 0 J
   (b) 15 J
   (c) 45 J
   (d) 150 J

2. The gravity of the Earth pulls on the moon as the moon orbits the Earth. Does the Earth's gravity do work on the moon?
   (a) Yes, because both distance and force are non-zero.
   (b) Yes, because eventually the moon will crash into the Earth.
   (c) No, because the displacement and force are always at 90°to each other.
   (d) No, because gravity can never do work.

3. You wish to raise a 100 kg mass a distance of 1 meter. Which of the following methods would require the least amount of work?
   (a) Lifting the mass straight up.
   (b) Pushing the mass up a frictionless ramp.
   (c) Using a frictionless pulley to raise the mass.
   (d) All 3 ways of moving the object requre the same amount of work.

4. You do 200 J of work while pushing a box across a frictionless horizontal surface with a force of 10N, directed horizontally. How far did you push the box?
   (a) 2000 m
   (b) 20 m
   (c) 2 m
   (d) 0.2 m
   (e) 0 m

5. A glass of water is at rest on top of a table, and has 4 J of gravitational potential energy. George picks up the glass of water, doing work on the glass as he raises it to drink. When the glass has reached its highest position, it has a potential energy of 7 J. How much work did George do?
   (a) 0 J
   (b) 3 J
   (c) 4 J
   (d) 7 J

Section 2. Free Response

6. You are fishing when you find that a fish has become caught on the hook at the end of your line. As you reel the fish in, you find that the fish stays at the surface of the water, despite the fact you are pulling it at an angle above horizontal. If you use a force of 30 N, the fish moves 5 meters, and the amount of work you did was 89.4 J, what is the angle you were pulling the fish at?

7. The 828-meter tall Burj Khalifa building in Dubai has been the world's tallest building since 2008. It is nearly twice as tall as the Sears Tower in Chicago. Calculate the amount of work it would take an elevator to move a 100 kg person to the top of the building.

Answer Key for Exam A

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