You **MAY** use notes on this quiz.

Answer Sheet

1.

2.

3.

4.

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8.

9.

10.

1. A high school student hits a nail with a hammer. During the collision, there is a force …

 a. on the nail but not on the hammer

 b. on the hammer but not on the nail c. on the nail and also on the hammer

2. An archer shoots an arrow. Consider the action force to be the bow string against the arrow. The reaction to this force is the …

 a. air resistance against the bow c. weight of the arrow

 b. arrow’s push against the bow string d. grip of the archer’s hand on the bow

 e. friction of the ground against the archer’s feet

3. A player hits a ball with a bat. The action force is the impact of the bat against the ball. What is the reaction to this force?

 a. grip of the player’s hand against the bat c. air resistance on the ball

 b. the weight of the ball d. the force of the ball against the bat

 e. none of the above

4. A person is attracted towards the center of the earth by a 500 N gravitational force. The force with which the earth is attracted toward the person is …

 a. very very large b. 500 N c. very very small

5. An unfortunate bug splatters against the windshield of a moving car. Compared to the deceleration of the car, the deceleration of the bug is …

 a. the same b. smaller c. larger

6. A car accelerates along a road. Strictly speaking, what is the force that moves the car?

 a. the road that pushes the car along c. the engine power

 b. the friction the road provides d. the exhaust of the car

7. When swimming in a pool, what propels you along when you push on the water?

 a. the reaction force of you on the water c. the action force of you pushing the water

 b. an unbalanced force on the water d. the reaction force of the water on you

8. A horse is pulling a cart. How many horizontal forces are acting on the horse?

 a. one, the horse pulling on the cart only

 b. one, the horse pushing on the road to move the cart

 c. two, the horse pulling on the cart and pushing on the road

 d. two, the cart pulling on the horse and the road pushing back on the horse

9. What opposing force must always be considered when there is contact between surfaces (solids, fluids, air resistance)?

 a. gravity b. friction c. weight d. inelastic collisions

10. You have a tug-o-war contest with a strong rope and win. Which side of the rope had more tension during the contest?

 a. the winning side b. the losing side c. the tension was the same on both sides