Form A

**Part 1** Choose the letter of the answer that **best** completes each statement.

1. The property of matter that resists a change in motion is:

a) inertia b) gravity c) friction d) weight.

2. Mass times acceleration equals:

a) inertia b) force c) words d) weight

3. Action-reaction describes which of Newton’s Laws of Motion?

a) first b) second c) third d) fourth

4. The metric unit of force is the:

a) gram b) newton c) velocity d) joule

5. What will happen to an object when a net force acts on it?

a) fall b) stop c) accelerate d) go in a circle

6. Which of the following is not a type of friction?

a) gravity b) sliding c) fluid d) static

7. Which is Newton’s second law?

a) F = ½ ma2 b) F = 2ma c) p = mv d) a = F/m

8. Which term best describes the forces on an object with a net force of zero?

a) inertia b) balanced forces c) acceleration d) unbalanced forces

9. How can speed be defined?

a) acceleration/time b) change in velocity/time c) distance/time d) displacement/time

10. Which of the following objects has the greatest inertia?

a) a car parked on the side of the road c) a computer sitting on a desk

b) a baseball during a pop fly d) a woman running on a track

11. Which answer best describes why a passenger who is not wearing a seat belt will likely hit the windshield in a head-on collision?

a) forces acting on the windshield c) acceleration of the car

b) inertia of the unbelted person d) gravity taking over

12. Which of the following is not used in calculating acceleration?

a) initial velocity b) time interval c) final velocity d) average speed

13. Compared with a 1-kg block of solid iron, a 2-kg block of solid iron has the same

a) mass b) volume c) inertia d) none of these e) all of these

14. An object maintains its state of motion because it has

a) mass b) weight c) speed d) acceleration

15. A sheet of paper can be withdrawn from under a container of milk without toppling it if the paper is jerked quickly. This best demonstrates that:

a) the milk carton has no acceleration c) gravity tends to hold the milk carton secure

b) the milk carton has inertia d) there is an action-reaction pair of forces

16. According to Newton’s second law, when an object is propelled along a straight-line path by a force, if the net force were doubled, its acceleration would:

a) stay the same b) double c) be cut in half d) quadruple (4 times the force)

17. A 10-N falling object encounters 10 N of air resistance. The net force on the object is:

a) 0 N b) 4 N c) 6 N d) 10 N

18. A car has a mass of 1000 kg and accelerates at 2 m/s/s. What is the force exerted on the car?

a) 500 N b) 1000 N c) 1500 N d) 2000 N

19. A girl pulls on a 10-kg wagon with a constant force of 30 N. What is the wagon’s acceleration in m/s/s? a) 0.3 b) 3.0 c) 10 d) 300

20. A baseball player bats a ball with a force of 1000 N. The ball exerts a reaction force against the bat of: a) less than 1000 N b) 1000 N c) more than 1000 N

21. The force exerted on the tires of a car to directly accelerate it along a road is exerted by the:

a) engine b) tires c) air d) road

22. Which person did not utilize the scientific method to make conclusions about motion?

a) Aristotle b) Galileo c) Newton

23. You are walking at constant speed and throw a ball straight up into the air. Then, you stop dead. What happens to the ball?

a) it lands behind you c) it lands back in your hand

b) it lands in front of you d) not enough information was given

24. Which exerts greater force when you stretch a rubber band between your thumb and index finger? a) the thumb b) the index finger c) the rubber band d) none of these

25. Which of Newton’s laws of motion applies to a tennis racket accelerating a tennis ball more than throwing the ball by hand? a) first b) second c) third d) fourth

**Part 2** On your answer sheet, give a real-life example that shows all three of Newton’s Laws of Motion. Explain how each law is involved in the example you chose.

Form B

**Part 1** Choose the letter of the answer that **best** completes each statement.

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Answer Key

Form A Form B

1. \_\_\_A\_\_\_ 1. \_\_\_D\_\_\_

2. \_\_\_B\_\_\_ 2. \_\_\_A\_\_\_ philosopher

3. \_\_\_C\_\_\_ 3. \_\_\_B\_\_\_

4. \_\_\_B\_\_\_ 4. \_\_\_D\_\_\_

5. \_\_\_C\_\_\_ 5. \_\_\_B\_\_\_ f = ma

6. \_\_\_A\_\_\_ 6. \_\_\_D\_\_\_

7. \_\_\_D\_\_\_ 7. \_\_\_B\_\_\_

8. \_\_\_B\_\_\_ 8. \_\_\_C\_\_\_

9. \_\_\_C\_\_\_ 9. \_\_\_A\_\_\_ due to its mass

10. \_\_A\_\_\_\_ due to its mass 10. \_\_B\_\_\_\_

11. \_\_B\_\_\_\_ 11. \_\_D\_\_\_\_

12. \_\_D\_\_\_\_ 12. \_\_D\_\_\_\_

13. \_\_D\_\_\_\_ 13. \_\_A\_\_\_\_

14. \_\_A\_\_\_\_ 14. \_\_B\_\_\_\_

15. \_\_B\_\_\_\_ 15. \_\_C\_\_\_\_

16. \_\_B\_\_\_\_ f = ma 16. \_\_B\_\_\_\_

17. \_\_A\_\_\_\_ 10 N – 10 N 17. \_\_C\_\_\_\_

18. \_\_D\_\_\_\_ a = f/m 18. \_\_A\_\_\_\_

19. \_\_B\_\_\_\_ 19. \_\_A\_\_\_\_

20. \_\_B\_\_\_\_ action / reaction 20. \_\_B\_\_\_\_

21. \_\_D\_\_\_\_ 21. \_\_B\_\_\_\_ f = ma

22. \_\_A\_\_\_\_ philosopher 22. \_\_A\_\_\_ 10 N – 10 N

23. \_\_B\_\_\_\_ 23. \_\_D\_\_\_ a = f/m

24. \_\_D\_\_\_\_ 24. \_\_B\_\_\_

25. \_\_B\_\_\_\_ f = ma 25. \_\_B\_\_\_ action / reaction

Part 2: