1. _____ is the tendency of an object to resist a change in motion.
        A. Gravity
        B. Force
        C. Inertia
        D. Mass

Answer C

2. "An object at rest will stay at rest unless acted upon by an unbalanced force" is an example
        A. Newton's 1st Law
        B. Newton's 2nd Law
        C. Newton's 3rd Law
        D. Newton's Gravitation Law

Answer A.

3. Inertia is
        A. a property of matter
        B. a type of force
        C. the speed of an object
        D. resistance to change in motion

Answer D

4. A man pulls a cart with a forward force of 500N, while his son pushes with a force of 100N. The resultant force on the cart is
        A 600N in the backward direction
        B 400N in the forward direction
        C 600 N in the forward direction
        D 400 N in the backward direction
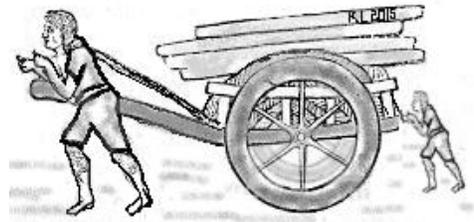
Answer C. (Forces point in the same direction so they add up).

5. X, Y and Z are three objects with masses 100 kg, 50kg and 75 kg respectively, then
        A. All will have the same inertia
        B. X will have the greatest inertia
        C. Y will have the greatest inertia
        D. Z will have the greatest inertia

Answer B. (inertia is proportional to mass)

6. The resultant of balanced forces is
     A. non zero
     B. equal to zero
     C. equal to mass X acceleration
     D. equal to the acceleration produced in the body

Answer B

18. The physical quantity, which is the measure of inertia, is
     A. density
     B. weight
     C. force
     D. mass

Answer D

19. The S.I. unit of force is
     A. kilogram
     B. joule
     C. newton
     D. watt

Answer C.

20. A force of 10N acting on a mass of 1kg that is free to causes
     A. a velocity of 10 ms^{-1}
     B a speed of 10 ms^{-1}
     C. an acceleration 10 ms^{-2}
     D. an acceleration of 0.1 ms^{-2}

Answer C (Newton's Second law: a = $^{F}/_{m}$, then a = $^{10N}/_{1kg}$, a = 10 ms^{-2})

21 When an object is thrown upward, the force of gravity
     A is constant and opposite to the direction of motion
     B is constant and in the same direction as the direction of motion
     C decreases to zero at the highest point
     D increases to a maximum at the highest point

Answer A (gravity always acts down towards the centre of the Earth and the direction of motion of the object is up)

22. The acceleration in a body is due to
          A. a balanced force
          B. an unbalanced force
          C. its speed
          D. its velocity

Answer B. (Newton's Second Law: $a = \frac{F}{m}$)

23. An object undergoing acceleration always
          A. a decrease in speed
          B. an increase in velocity
          C. an increase in speed
          D. a change in velocity.

 Answer D (by definition, acceleration is the rate of change of velocity. Velocity may change if magnitude increases or decreases or direction changes)

13. An example for a vector quantity is
          A. speed
          B. velocity
          C. distance
          D. length

Answer B

14. Which of Newton's laws best explains why motorists should buckle-up?
          A. the first law
          B. the second law
          C. the third law
          D. the law of gravitation

Answer A. (When a vehicle stops suddenly, your body continues to move forward, which can cause you to collide with the dashboard and be injured. The seatbelt applies a force on you to slow you down to the speed of the car).

15. Which of Newton's laws best explains why bricks are strapped onto a truck during transport?
          A. the first law
          B. the second law
          C. the third law
          D. the law of gravitation

Answer A. (When a truck stops suddenly, the bricks continue to move forward, which can cause an accident. The straps apply forces on them to slow you down to the speed of the truck. Also when the truck attempts to turn a corner, they may want to continue in a straight line, so the straps apply forces to cause them to change direction).

16. A ball is thrown up and attains a maximum height of 20 m. Its initial speed was
    A. 10 ms^{-1}
    B. 200 ms^{-1}
    C. 20 ms^{-1}
    D. 2 ms^{-1}

Answer C ($v^2 = u^2 + 2as$). Taking up as positive s =20m, v = 0ms^{-1} (ball is at rest at the highest point) a = -10ms^{-2} (a points down)
$0 = u^2 + 2$ (-10ms^{-2}) (20m)
$0 = u^2 - 400$ (ms^{-2})(m)
$u^2 = 400$ (ms^{-2})(m)
U = 20 ms^{-1}

17. When you sit on a stationary chair, the resultant force on you is
    A. zero
    B. up
    C. down
    D. depends on your weight.

Answer A (Forces on you are (i) reaction of the seat, (ii) your weight. By Newton's Third Law you push on the chair with your weight so the chair pushes with an equal and opposite force – reaction of the seat. Since the chairs reaction is equal in magnitude but opposite in direction to your weight, there is zero net force on you! A clue might be that you are not moving (Newton's Frist Law).

24. In the absence of an external force, a moving object will
    A. stop immediately
    B. slow down and eventually come to a stop
    C. go faster and faster
    D move with constant velocity

Answer D. (Newton's 1st Law)

25. When the rocket engines on a starship are suddenly turned off, while traveling in empty space, the starship will
    A. stop immediately
    B. slow down, and then stop.
    C. go faster and faster
    D. move with constant speed

Answer D. (Newton's 1st Law)