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

____ 1. If you go twice as fast, your kinetic energy becomes:
a. 2 times smaller.
b. 4 times smaller.
c. 2 times bigger.
d. 4 times bigger.

____ 2. Energy is measured in:
a. newtons.
b. joules.
c. kg/m_2
d. $kg \cdot m/s_2$

____ 3. What is a requirement of doing work?
a. Speed
b. Energy
c. Mass
d. Weight

____ 4. An extended spring stores:
a. radiant energy.
b. potential energy.
c. kinetic energy.
d. chemical energy.

____ 5. Energy can be thought of as stored ____.
a. Force
b. Mass
c. Weight
d. Work

____ 6. Kinetic energy increases with:
a. mass and distance.
b. mass and speed.
c. speed and distance.
d. speed and time.

____ 7. Potential energy is energy due to the:
a. motion of an object.
b. height of an object.
c. temperature of an object.
d. speed of an object.

____ 8. Which of the following stores energy?
a. A battery
b. Food
c. A stretched rubber band
d. All of the above

_____ 9. What provides most of Earth's energy for living things and technology?
a. Oil and gas
b. The Sun
c. Gravity
d. Mars

_____ 10. What is the kinetic energy of a go-cart with a mass of 150 kilograms and a speed of 20. m/s?
a. 1,500 J
b. 3,000 J
c. 30,000 J
d. 60,000 J

_____ 11. Which type of energy does a stretched spring contain?
a. Radiant energy
b. Electrical energy
c. Chemical energy
d. Elastic energy

_____ 12. On what does kinetic energy depend?
a. Mass and velocity
b. Gravity and mass
c. Gravity and height
d. Velocity and gravity

_____ 13. When energy in a system is transformed, what happens to the total amount of energy in the system?
a. It increases.
b. It decreases.
c. It stays the same.
d. It goes to zero.

_____ 14. What happens to the energy stored in oil when you use it to heat your house?
a. It is used up.
b. It is destroyed.
c. It is converted to heat energy.
d. It stays exactly the same.

_____ 15. The brakes on an automobile become hot when they are used continuously because:
a. kinetic energy is being converted to thermal energy.
b. potential energy is being converted to thermal energy.
c. the friction of the brakes causes an increase in kinetic energy..
d. the friction of the brakes causes an increase in potential energy.

_____ 16. When gasoline is used as fuel in an automobile engine several energy transformations take place. Which of the following statements does NOT agree with the law of conservation of energy?
a. When gasoline is burned, its energy is destroyed.
b. The energy from the gasoline can be transformed to produce light.
c. As the energy in the form of gasoline decreases, the energy increases in another form.
d. Once the energy in the gasoline is released, it can never be destroyed.

_____ 17. Exercise may transform the chemical energy in the food you eat into:
a. kinetic energy.
b. potential energy.
c. both kinetic and potential energy.
d. neither kinetic or potential energy

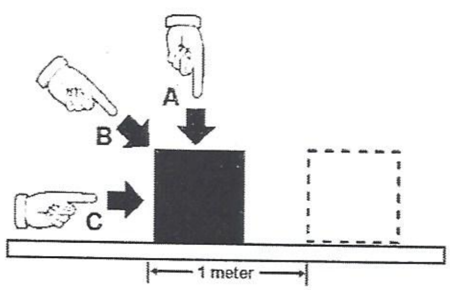
_____ 18. As an object is raised to a higher position, which type of energy increases?
a. kinetic energy.
b. potential energy.
c. heat energy.
d. light energy.

_____19. Work may be measured using units of:
a. watts.
b. newtons.
c. joules.
d. newtons per second.

_____ 20. The equation used to calculate work when force is applied to move an object some distance is:
a. Work = force + distance
b. Work = force ÷ distance
c. Work = distance ÷ force
d. Work = force × distance

_____ 21. Which of the following use the same units of measurement?
a. Power and work
b. Force and work
c. Energy and work
d. Power and energy

_____ 22. If forces A, B and C are equal, the work done by the forces as they are exerted on the box is:



a. greatest for force A.
b. greatest for force B.
c. greatest for force C.
d. the same for all forces.

_____23. What is the most work that can be done with 100 joules of energy?
a. 10 J
b. 100 J
c. 1,000 J
d. 10,000 J

_____ 24. Calculate the work needed to push a block with 4 newtons of force a distance of 10 meters.
a. 0.4 joules
b. 2.5 joules
c. 4 joules
d. 40 joules

_____ 25. The action that would require NO work to be done is:
a. holding a 100-pound object over your head.
b. pushing a 25-kilogram box of books across the floor.
c. pedaling a 100-newton bicycle up a small hill.
d. lifting a balloon filled with air from the floor to a desktop.

_____ 26. Jake, who weighs 680 newtons, climbs a 6 meter ladder in 8 seconds. What was Jake's power?
a. 510 watts
b. 4080 watts
c. 5440 watts
d. 32640 watts

_____ 27. The efficiency of a machine is usually expressed in:
a. joules.
b. watts.
c. newton-meters.
d. percent.

_____ 28. The measure of how effective a machine is in using energy to do work is called:
a. work output.
b. transformation.
c. mechanical advantage.
d. efficiency.

_____ 29. Which of the following improves the efficiency of a machine?
a. Reducing friction
b. Adding more energy
c. Running it faster
d. Increasing friction

_____ 30. The work output of a machine:
a. is always greater than the work input.
b. is always less than the work input.
c. must be equal to the work input.
d. is always changing the work input.

_____ 31. Running up a flight of stairs, Marita generates 450 watts of power. If it takes her 6 seconds to go up the stairs, the amount of work she does in running up the stairs is _____ joules.
a. 0.013
b. 75
c. 450
d. 2,700

32. ~~Circle~~ Bubble in letter "C"