Name:

Date:

Teacher/Class:

Energy Forms Test

1. The following steps describe the process of generating electricity by burning coal in a power plant:

- 1. The coal fire converts liquid water to steam.
- 2. The steam rotates fanlike blades of a mechanical turbine.
- The shaft of the turbine spins an electric generator.
- The electric power is delivered to the consumer over long-distance power lines.

Which energy transformation occurs during this process?

- A. Nuclear energy of the steam is converted to thermal energy of the turbine.
- B. Mechanical energy from the turbine is converted to electric energy in the generator.
- C. Electric energy from the generator is converted to chemical energy in the power lines.
- D. Chemical energy from the generator is converted to electric energy in the power lines.

2. A ball is released from rest at position 1. The diagram shows the ball in four positions as it rolls along a track from left to right.

In which position does the ball have its minimum gravitational potential energy and maximum kinetic energy?

- A. 1
- B. 2 C. 3
- D. 4

3. Electricity is produced in a hydroelectric plant when moving water turns a turbine.

Which describes this energy transformation from the turning turbine to electricity?

- A. kinetic energy into electric energy
- B. nuclear energy into electrical energy
- C. thermal energy into electric energy
- D. chemical energy into electric energy
- 4. When energy is transferred in a system, the total amount of energy before the transfer is after the transformation is complete, just in different forms.
- a. different
- b. <mark>the same</mark>
- c. lost
- d. transformed into light
- 5. Which statement is false?
- a. A closed system does not interact with its surroundings.
- b. Matter and energy can be transferred in and out of an open system
- c. Energy can be created or destroyed.
- d. If energy appears to be gained or lost, it has just transferred into a different system
- 6. What are indicators that tell you energy has transferred.
- a. Object gives off noise, light, or heat
- b .Object speeds up or slows down
- c. Smelling smoke, hearing a crackle
- d. all of the above are indicators of energy transfer

Directions: Use the following words to match to the definition. (Chemical, Potential, Mechanical, .Sound, Nuclear, Kinetic, Thermal, Radiant, Electrical)

- 7. stored energy is called-potential
- 8. energy of motion is called- Kinetic
- 9. light energy is called- radiant
- 10. the energy of moving parts- mechanical
- 11. heat energy is called- thermal
- 12. energy from splitting atoms is called-nuclear
- 13. energy stored in the bonds of atoms is called- chemical
- 14. movement of electrons is called- electrical
- 15. vibrations through matter is called- sound

Directions: Use the following words to fill in the blank. Some words may not be used. (radiant, gravitational, chemical, thermal, nuclear, electrical, mechanical, kinetic, potential, sound, motion, conservation of energy, energy efficiency)

16. Stored energy and the energy of position are potential energy.

17. The vibration and movement of the atoms and molecules within substances is called heat or thermal energy.

18. The Scientific rule that states that energy cannot be created or destroyed is called the Law of conservation of energy.

- 19. The energy of position-such as a rock on a hill is potential/gravitational.
- 20. The amount of useful energy you get from a system is its energy efficiency.
- 21. The movement of electrons is electrical energy.
- 22. The energy in petroleum and coal is stored as chemical/potential energy.
- 23. Fission and fusion are examples of nuclear energy.
- 24. Hydropower reservoir is an example of potential/gravitational energy.

Directions: Use the following words to fill in the blank. Some words may not be used. (nucleus, atom, element, proton, neutron, electron, shells, static, load, turbine, generator, magnetic field, magnet, circuit, battery, attract, repel, charge)

- 25. A path through which electricity travels. circuit
- 26. A device that converts energy into a spinning motion. turbine
- 27. A device with magnets and coils of wire that produces electricity. generator
- 28. A device that produces electricity through a chemical reaction. battery

29. An object in which the electrons at one end spin in one direction and the electrons at the other end spin in an opposite direction. magnet

30. What form of energy has the greatest impact on making the radiometer work? thermal or radiant- thermal

31. Which type of system does not allow matter and energy in or out and cannot interact with its surroundings?

A. open B. closed C. sound D. energy

32. Dissipated energy is

a. energy that transforms into mechanical energy and released into the surroundingsb. energy that can be measured by a voltmeter

c. energy that is transformed into thermal energy and released into the surroundings d energy that is easy to capture and measure with an ammeter

33. What is true when energy transfers in a system.

a. not all energy gets transferred and some is lost along the way

b. energy gets transferred in different amounts to different forms but not 100% transfers

c. energy gets transferred in different amounts to different forms with 100% transferring

d. half of the energy transferred is destroyed

34. Thermal energy can be transferred when moving atoms collide. This is called?

- a. collision
- b. convection
- c. conduction
- d. condition

35. Extended Response: Pick two of the four experiments we did in class about transformation of energy and explain each step in the process and what forms of energy are being transferred in each step. Choice one your Rube Goldberg experiment, choice two the radiometer, choice three the energy bike, and choice four the melting of ice on the blocks.