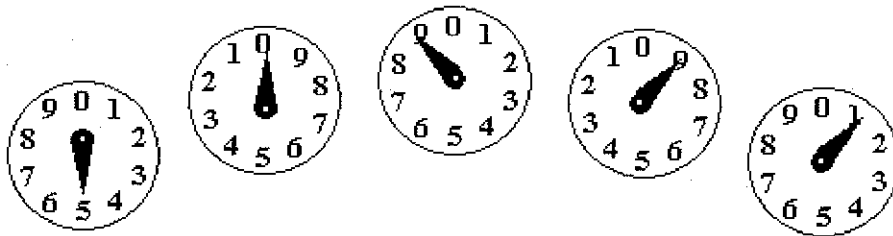


FINAL EXAM Review Package - PHYSICS**Completion***Complete each statement.*

1. If you walk across a carpet on a cold, dry winter day and touch a metal doorknob, you may get a _____.
2. Eventually, all static charge is _____, or lost, to other objects or the air.
3. An object with equal numbers of positive and negative charges is said to be _____.
4. A negative ion is an atom which has _____ electrons.
5. When ebonite is rubbed with wool, the wool tends to lose electrons so that the ebonite becomes _____ charged.
6. Neutral objects are attracted to charged objects because of a(n) _____ charge separation.
7. A neutron has about 2000 times the mass of a(n) _____.
8. The smallest charged particle is the _____.
9. If an object has more electrons than protons, it is said to have a _____ charge.
10. If an object with a neutral charge loses an electron, it will have a _____ charge.
11. When two neutral objects are rubbed together producing a charge on both, this is called charging by _____.
12. When an object is charged without contact, this is called charging by _____.
13. When considering electricity, pure water is a(n) _____, but salt water is not.
14. When considering electricity, copper is a(n) _____, but glass is not.
15. The unit of measure of current is the _____.
16. A circuit that has only one pathway for current flow is called a _____ circuit.
17. Current can be measured with a(n) _____.
18. In order to measure the current through a lamp in a circuit, the meter should be connected in _____ with the lamp.
19. If cells are connected in _____, the potential difference across the battery is larger than it is across a single cell.
20. If cells are connected in _____, the battery can be used to supply energy to loads that require more voltage.
21. Five $10\ \Omega$ resistors in series will have a total resistance of _____ ohms.
22. Potential energy is energy that can be _____.
23. _____ energy is the energy stored in the nucleus of an atom.
24. Gravitational potential energy is energy stored in an object because of its _____.

25. Work can be defined as the _____ in energy from one form to another.
26. Natural gas has the ability to do work because of its stored _____ potential energy.
27. Light bulbs and other electric devices are labelled with a power _____ which tells how much power will be used by the device when the device is used as it is designed.
28. A _____ resource is a source of energy that is used up in the process of making other forms of energy.
29. Hydroelectric power is considered to be a _____ resource.
30. Tidal power is considered to be a _____ resource.
31. Geothermal energy is considered to be a _____ resource.
32. Biomass energy is considered to be a _____ resource.
33. Oil is considered to be a _____ resource.
34. The SI unit of energy is the _____; it is not used as the unit of energy for electricity bought from the power company.
35. Electricity in the homes of British Columbia is measured in _____ and priced at about \$0.08 per unit.
36. The main number on an EnerGuide label shows the estimated amount of energy that will be used by an appliance in one _____.



37. The image above shows a meter that reads in units of _____.
38. The image above shows a meter that reads an amount of _____ used by a home.
39. The term ΔE means a _____ in energy.
40. The amount of energy used can be calculated by multiplying the power used by the amount of _____.

Matching

Match the terms below with the following definitions.

- | | |
|--------------------------------------|----------------------------------------|
| a. does not allow movement of charge | d. separation of protons and electrons |
| b. allows movement of charge | e. lightning |
| c. safe from unwanted charge | |

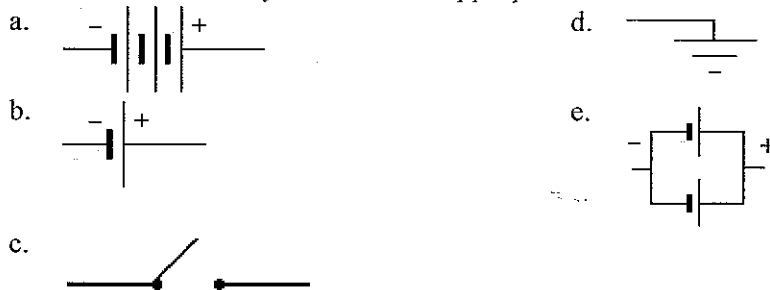
- _____ 41. insulator
- _____ 42. static discharge
- _____ 43. induced charge
- _____ 44. conductor
- _____ 45. grounded

Match the parts of the atom with their description

- | | |
|-------------|----------|
| a. positive | d. large |
| b. negative | e. small |
| c. neutral | |

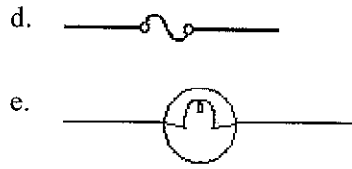
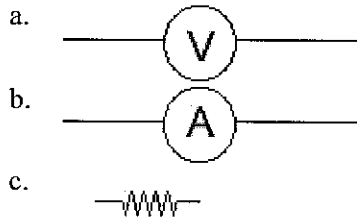
- _____ 46. neutron
- _____ 47. proton
- _____ 48. electron
- _____ 49. proton mass compared to an electron
- _____ 50. electron mass compared to a neutron

Match the electrical symbol with the appropriate name



- _____ 51. switch
- _____ 52. ground
- _____ 53. single cell
- _____ 54. series battery of 3 cells
- _____ 55. parallel battery

Match the electrical symbol with the appropriate name.



- ___ 56. ammeter
- ___ 57. resistor
- ___ 58. lamp
- ___ 59. fuse
- ___ 60. voltmeter

Match the part of the circuit analogy to the part of the circuit it represents.

- | | |
|------------|-----------------|
| a. wire | d. current |
| b. battery | e. voltage loss |
| c. load | |

- ___ 61. water falling down through water wheel
- ___ 62. trough (waterway)
- ___ 63. water wheel
- ___ 64. water pump lifting water
- ___ 65. flowing water

Match the energy type with the related example by writing the letter corresponding to the energy example next to the form of energy.

- | | |
|------------------|--------------|
| a. springs | d. gasoline |
| b. uranium atoms | e. waterfall |
| c. lightning | |

- ___ 66. electrical
- ___ 67. gravitational
- ___ 68. chemical
- ___ 69. elastic
- ___ 70. nuclear

Match the energy definition with the related energy type by writing the letter corresponding to the energy type next to the definition.

- | | |
|----------------------------|----------------------|
| a. electrical | d. elastic potential |
| b. gravitational potential | e. nuclear |
| c. chemical potential | f. kinetic |

- ___ 71. energy stored in an object because of its height
- ___ 72. energy stored in objects that are stretched or compressed
- ___ 73. energy from the movement of electrons
- ___ 74. energy of motion

Name: _____

ID: A

- ___ 75. energy stored in chemical bonds
- ___ 76. energy stored in the nucleus of an atom

Problem

- 77. An electric crockpot connected to a 120 V outlet has a resistance of 52Ω . How much current does the crockpot use?
- 78. The current required to operate a coffee maker is 7.5 A. What is its resistance when connected to a 120 V circuit?
- 79. When in talk mode, a cellular phone requires a current of 0.5 A. What is its resistance if it operates at 7.0 V?
- 80. When in standby mode, a cellular phone requires a current of 50 mA. What is its resistance if it operates at 7.0 V?

Essay

- 81. Wooden warships in the 18th and 19th Centuries carried large amounts of gunpowder for the cannons that were used in battles. Young boys, called powder monkeys, were part of the crew. It was their job to run back and forth from the powder magazines to the gun crews with wooden kegs of gun powder. One of the rules on these ships was that the powder monkeys must never wear shoes while on duty and must perform their jobs in bare feet. Explain why it would be more dangerous for the boys to run about on the wooden decks in rubber or leather boots than it would be for them to be barefooted.
- 82. Use your knowledge of static electricity to explain lightning.
- 83. Explain what happens when a person stands touching a Van de Graaff generator; use appropriate vocabulary and static electricity concepts to explain these effects. Include a discussion about why the person should stand on a plastic or Styrofoam base to gain the most dramatic effect.
- 84. Describe the nature of the atom as it relates to static electricity. Include a discussion of the relevant subatomic particles and how different types of static charge result.
- 85. A student sets up a circuit with dry cells in dry cell holders, a switch, two lamps, and several wire leads. When the switch is closed, the student is presented with the problem that the lamps do not light. Describe what the student should do to determine what is wrong with the circuit.
- 86. How are ammeters and voltmeters used to analyze circuits?
- 87. State the Law of Conservation of Energy, and explain how it relates to energy production and use in society.