PS Chem Chapter 15 & 16 Review Test Date_____

Additional resources for review…

- http://highered.mcgraw-hill.com/sites/0078600510/student_view0/unit4/chapter15/chapter_review_quiz-english.html
- Definitions, review worksheets and the online quizzes! http://www.fordhamprep.org/gcurran/sho/sho/lessons/lesson14.htm
- Chapter 15 & 16 Review Questions from text book
- http://glencoe.mcgraw-hill.com/sites/0078779626/student_view0/unit4/chapter16/chapter_review_quiz-english.html

Matching: Match the following definitions to the correct term and/or concept.

____1. Matter

____2. Mixture

____3. Homogeneous Mixture

____4. Heterogeneous Mixture

____5. Pure Substance

____6. Element

____7. Compound

____8. Solution

____9. Suspension

____10. Physical Change

____11. Chemical Change

A. Two or more atoms that are chemically combined.

B. Substance made up of only one type of atom.

C. The change of a substance into another substance, by reorganization of the atoms, i.e. by the making and breaking of chemical bonds.

D. Mixture in which the properties and composition are not uniform throughout the sample.

E. Mixture in which the properties and composition are uniform throughout.

F. Anything that takes up space and has mass. Can be divided into mixtures and pure substances.

G. Two or more substances that are physically (not chemically) combined.

H. A change in the form of a substance, for instance, from solid to liquid or liquid to gas or solid to gas, without changing the chemical composition of the substance.

I. Matter with constant composition. Can be divided into compounds or elements.

J. A type of homogeneous mixture where the parts are physically combined. The solvent of the solution dissolves the solute.

K. Mixture that will eventually settle.

Multiple Choice:

____11. Which of the following best describes particles in a solid?
A) particles tightly packed together B) no attractive forces between particles
C) fills whatever container it is in D) molecules slide past each other; sample takes shape of container

____ 12. Particles within a solid
A) do not move. B) vibrate energetically.
C) vibrate weakly about fixed positions. D) exchange positions easily.

____13. What does the constant bombardment of gas molecules against the inside walls of a container produce?
A) temperature B) pressure C) density D) diffusion

____ 14. Compared with the particles in a gas, the particles in a liquid
A) have more energy. B) move around less. C) are larger. D) are farther apart.

____15. Increasing temperature
A) increases viscosity. B) decreases viscosity. C) does not affect viscosity. D) eliminates viscosity.

____ 16. Why does the air pressure inside the tires of a car increase when the car is driven?
A) Some of the air has leaked out.
B) The air particles inside the tire increase their speed because their temperature rises.
C) The atmosphere compresses the tire.

____ 17. What happens to the volume of a gas during compression?
A) The volume increases. B) The volume decreases.
C) The volume remains constant. D) It is impossible to tell because all gases are different.

____ 18. Compared with the particles in a liquid, the particles in a solid usually are
A) higher in energy. B) more massive. C) closer together. D) more fluid.

____19. Which of the following properties do solids share with liquids?
A) fluidity B) definite volume C) definite shape D) slow rate of diffusion .

____ 20. Solids have a definite volume because
A) the particles do not have a tendency to change positions. B) the particles are far apart.
C) they can be easily compressed. D) the energy of the particles is high.

____21. Charles' Law relates what two variables?
A) Volume and pressure B) Volume and temperature
C) Temperature and pressure D) Pressure and moles of gas

____22. Boyle's Law relates what two variables?
A) Volume and pressure B) Volume and temperature
C) Temperature and pressure D) Pressure and moles of gas

____ 23. When the temperature of a substance is lowered, its particles _____ .
A) vibrate more slowly B) escape quickly the attractive forces of the other particles
C) vibrate more D) stop vibrating completely

____24. Which of the following equations correctly relates the two variables?
A) P1/V1= P2/V2 B) V1/T1= V2/T2 C) P1T1= P2T2 D) P1n1= P2n2

____25. According to the kinetic-molecular theory, particles of matter
A) are in constant motion. B) have different colors. C) have different shapes. D) are always fluids.

____26. Fog is an example of a ____.
A) Colloid B) Compound C) Substance D) Solution

____27. A ____ is NOT a mixture.
A) Colloid B) Compound C) Substance D) Solution

____28. Pure Substances are either elements or ___.
A) Mixtures B) Compounds C) Solutions D) Suspensions

____29. A fruit salad is a _____
A) Heterogeneous mixture B) Homogeneous mixture C) Substance D) Solution

____30. Which of the following is not a physical property?
A) Density B) Buoyancy C) Flammability D) Melting Point

____31. A _____ is a substance in which all the atoms are the same.
A) mixture B) compound C) solution D) element

____32. ____ is another name for a homogeneous mixture.
A) Suspension B) Substance C) Solution D) Liquid

____33. Which of the following is not a physical property?
A) Volume of ink in a pen B) Reactivity of sodium C) Shape of an apple D) Taste of sugar

Fill in the blank/Short Answer:

34. According to Boyle's law, at a constant temperature, if the volume of a container of gas is _____, then pressure of the gas will _____ .

35. Bernoulli's principle states that as the velocity of a fluid _____, the pressure exerted by the fluid _____ .

36. An object weighing 50 kg is floating in a fluid. What is the buoyant force of the fluid on the object? _____

Identify each of the following as an element (E), compound (C), homogeneous mixture (M), or heterogeneous mixture (T).

____ 37. mercury

____ 38. table salt, sodium chloride

____39. (pure) water

____ 40. vinegar

____ 41. air

____ 42. tap water

____ 43. oxygen

____ 44. carbon dioxide

____ 45. vegetable soup

____46. iron

____ 47. concrete

____ 48. copper

____ 49. pizza loaded with toppings

____50. dry soup mix

____ 51. granite

____ 52. soft drink

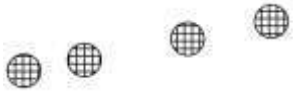
____ 53. muddy water

____ 54. salt water solution

____ 55. gold

State whether each of the following diagrams represents an element (E), compound (C), homogeneous mixture (M), or heterogeneous mixture (T).

56.



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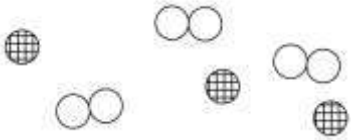

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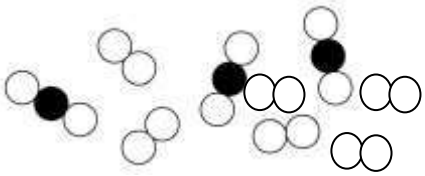

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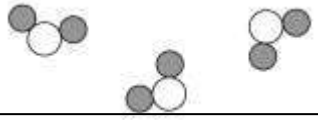

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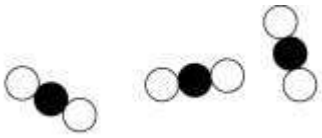


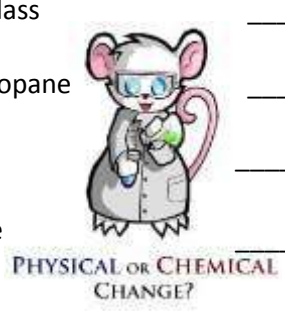
Multiple Choice: State whether each of the following changes would be physical (P) or chemical (C) change.

____61. breaking glass

____62. burning propane

____63. wood

____64. melting ice



____65. painting wood

____66. copper wire bending

____67. iron rusting

____68. sugar dissolving in water

____69. silver spoon tarnishing

____70. water evaporating

____71. crushing an antacid table

Short Answer Essay :

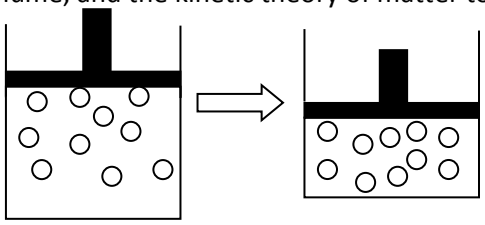
72. Describe the Kinetic Theory.

73. Describe thermal expansion. Which gas law is related to the concept of thermal expansion?

74. What does Archemedes' principle state?

75. Why does the air pressure inside the tire of a car increase when the car is driven?

76. The dots in the containers represent particles of air. Use what you know about pressure, temperature, volume, and the kinetic theory of matter to write a hypothesis to explain what is happening in the containers.



Practice Problems:

77. A hydraulic lift is used to lift a heavy machine that is pushing down on a 3.2 m^2 piston A_1 with a force F_1 of 1200 N. What force F_2 needs to be exerted on a 0.0068 m^2 piston A_2 to lift the machine?

78. A hydraulic lift is used to lift a heavy machine that is pushing down on a 6.8 m^2 piston A_1 with a force F_1 of 900 N. What force F_2 needs to be exerted on a 0.0075 m^2 piston A_2 to lift the machine?

79. A balloon has a volume of 8.0 L at a pressure of 101 kPa. What will be the new volume when the pressure drops to 43.0 kPa?

80. A sample of gas occupies a volume of 2.00 liters at a temperature of 100 K. What volume will the gas occupy at 300 K assuming the pressure remains constant?