Mid-term Exam Study Guide Name: _____
Physical Science A
6 points **DUE AT TEST** (THURS., 3/29/12) Date: _____ Hour: _____

1. What measurement can be taken with each of these pieces of equipment?

   example: ruler length

   (a) graduated cylinder: _____

   (b) balance: _____

   (c) thermometer: _____

   (d) scale: _____

   (e) beaker: _____

2. (a) What is a solution? _____

   _____

   (b) What is a suspension? _____

   _____

   (c) How are suspensions and solutions the same? _____

   _____

   (d) What is one way a suspension is different from a solution? _____

   _____

   (e) Give two examples of solutions: _____

   (f) Give two examples of suspensions: _____

3. (a) Draw a picture of a graduated cylinder with a meniscus.

   (b) What part of the meniscus should be read? _____

4. During the project, some students boiled their unknown mixtures.

   (a) Is boiling an example of a physical or chemical change? _____

   (b) Explain your choice: _____

   _____

5. (a) What is volume? _____

(b) What is mass? _____

(c) What is weight? _____

6. Name/list four SI prefixes: _____

7. What does physical science study? _____

_____

8. Place a **YES** beside each item that is likely to be studied by a physical scientist and a **NO** beside each item that is not.

_____ A) the temperature at which matter is destroyed

_____ B) the types of birds swimming in a nearby lake

_____ C) the time it takes a chemical reaction to occur at 45 °C

_____ D) the names of the bones that make up the human body

_____ E) the chemicals that make up a rock from the moon

9. Read the following problem and identify each of the factors listed after the paragraph.

Problem: Determine the relationship between the time it takes potassium nitrate to dissolve and the amount of water used.

A) independent variable _____

B) dependent variable _____

C) constant #1 _____

D) constant #2 _____

10. To solve the problem in question 9, you kept the amount of water constant at 35 mL but used three different temperatures: 20 °C, 40 °C, and 50 °C. You measured the time it took to dissolve at 92 s, 50 s, and 35 s respectively. What was wrong with the way you "solved" the problem?

_____

_____

_____

11. List the 7 steps of the scientific method.

(a) _____ (e) _____

(b) _____ (f) _____

(c) _____ (g) _____

(d) _____

12. What TWO items should always be worn in the science lab? _____

_____

13. What is a control group? _____

_____

_____

14. How can you tell by looking at the particles of a chemical if it is an element, a mixture, or a compound? _____

_____

_____

15. What is the difference between an independent and a dependent variable? _____

_____

_____

16. What is a constant? _____

_____

17. Decide if the following were physical changes (PC) or chemical changes (CC):

(a) Alka-Seltzer + water _____

(b) lighting a Bunsen burner _____

(c) melting copper wire _____

(d) filtering out graphite from salt _____

(e) massing 5.00 g of KNO_3 _____

(f) evaporating salt water _____

(g) adding water to a graduated cylinder _____

18. Define a hypothesis. _____

19. List one way pure science and technology are different. _____

_____

_____

20. What are TWO ways a problem is different from an exercise? _____

_____

_____

_____

_____

21. Circle the measurements below that are written correctly [5 are correct].

53 cm^3 10mL 8 g 9kgs 2,433 km 0.15 kg 4 L 14 K .40 m

22. List the seven fundamental units of SI: _____

_____

23. For each of the following problems, list the independent variable, the dependent variable, and two significant constants.

A) **Problem**: Determine the relationship between the temperature of water and the length of time it is heated.

independent variable _____

dependent variable _____

constant #1 _____

constant #2 _____

B) **Problem**: Determine the relationship between the concentration of acid and the time it takes to completely eat through a piece of metal.

independent variable _____

dependent variable _____

constant #1 _____

constant #2 _____

24. Name the nine parts of a lab report IN ORDER.

(a) _____ (f) _____

(b) _____ (g) _____

(c) _____ (h) _____

(d) _____ (i) _____

(e) _____

25. Draw each of the following pieces of lab equipment AND say what it is used for:

(a) ringstand (b) iron ring

(c) beaker (d) filter paper

26. What should happen if someone in the room gets chemicals in his/her eyes? _____

_____

_____

_____

_____

_____

_____

27. Explain what should happen if someone in the room gets chemicals all over his/her body.

_____

_____

_____

_____

_____

_____

_____

28. Explain how you would measure out 2.00 grams of salt.

_____

_____

_____

_____

_____

_____

_____

29. Should physical properties or chemical properties be used to separate mixtures? Explain your choice. _____

_____

_____

_____

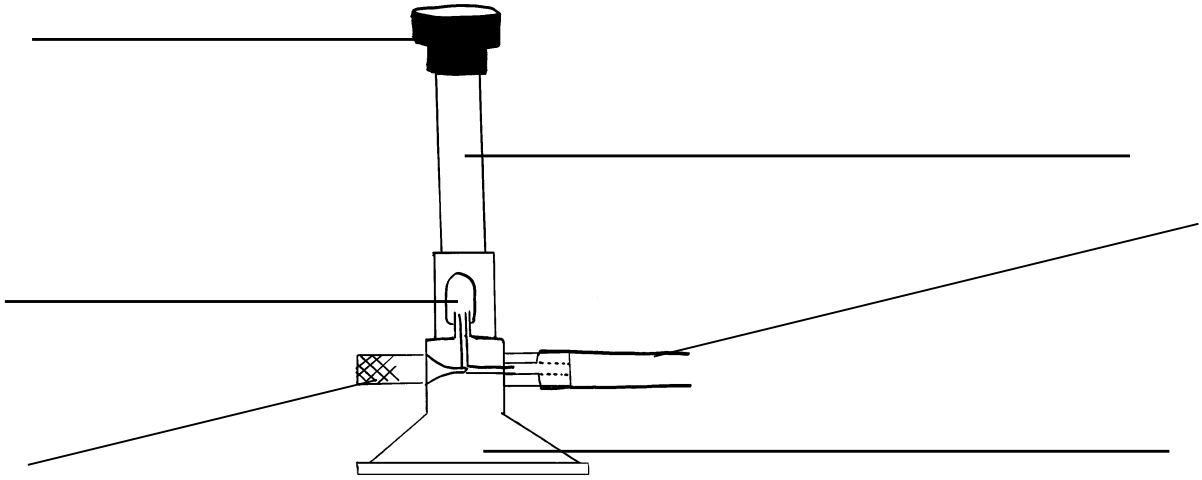
30. (a) What does the word homogeneous mean? _____

(b) Was your project's unknown mixture homogeneous? Explain your answer. _____

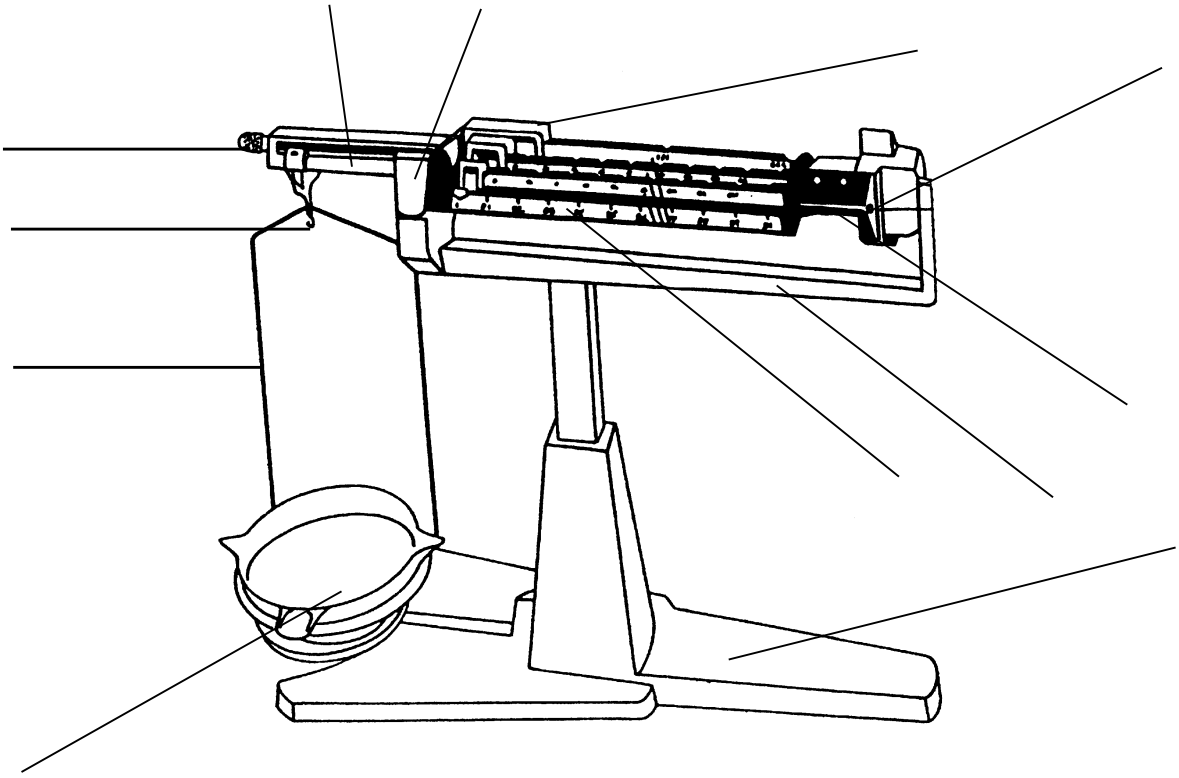
_____

_____

31. Label the 6 parts of the Bunsen burner:



32. Label the 12 parts of the balance:



33. How many numbers after the decimal should be written in a mass? _____

34. What is the boiling point of water in Celsius? _____

35. Write 467 000 000 kg in scientific notation: _____