CHE/PHY 125
FALL 2003
TEST 1

T  F  1. A liquid’s shape depends on the container, but its volume does not.
T  F  2. Measurement information used to describe something is called data.
T  F  3. A 100 ml piece of iron has twice the length as a 50 ml piece of iron.
T  F  4. The dependent variable is usually placed on the x-axis (abscissa).
T  F  5. A theory is a hypothesis that has been shown to be supported by many experiments.
T  F  6. The smallest particle with the properties of a pure substance is called an atom.
T  F  7. The neutron has a negative charge.
T  F  8. Neutrons are so much more massive than protons that you can neglect the mass of protons when determining the mass of an atom.
T  F  9. After plotting points on a graph, never connect the dots.
T  F  10. A compound is a mixture with fixed proportions of its components

11. The atomic number of an element is the number of
A. Protons  B. Protons and neutrons
C. Protons and electrons  D. All the particles in the atom.

12. In the atom, what subatomic particles are found in the nucleus?
A. Electrons and Protons  B. Neutrons and Electrons
C. Protons and Neutrons  D. Electrons, Protons and Neutrons

13. Which experiment below is an example of qualitative analysis, determining what substances are in a mixture?
A. Sinker  B. Rainbow Effect
C. Collapsing Cans  D. Candle observations

14. A tentative explanation of a scientific problem is called a(n):
A. Experiment  B. Hypothesis
C. Theory  D. Law
E. Model

15. In the crushing can experiment, the phase change of water was______________ when the can was heated.
A. Liquid to gas  B. Gas to solid
C. Liquid to solid  D. None of the above

16. In the candle exercise, what science process skill was used primarily?
A. Predicting.  B. Controlling variables
C. Experimenting  D. Observing

17. The mass number of an element is the number of
A. Protons  B. Protons and neutrons
C. Protons and electrons  D. All the particles in the atom.

18. A pure substance that cannot be decomposed into simpler substances by chemical means is
A. A mixture  B. An element
C. A compound  D. A solution

19. Which of the following is not a SI unit of the property it measures?
A. length – foot  B. volume - liter
C. time – second  D. mass – kilogram
20. Many great scientific discoveries were made not through the use of the Scientific Method, but by accident, a process called:
A. Experimentation  B. Modeling
C. Serendipity       D. Luck
E. Chance

21. The ISU unit of volume closest in size to a quart is
A. deciliter  B. liter  C. decaliter

22. Another name for the manipulated variable is
A. output    B. independent
C. effect    D. dependent

23. If a cube of JELLO is cut into two pieces a, what total property of the two pieces changes?
A. mass    B. volume
C. density  D. surface area

24. The property of volume is a measure of
A. how much matter the object contains
B. the compactness of matter in a given space
C. the extent of the surface of the object
D. how much space the object occupies

25. If it is 30°C outside, you would most like wear a ________________.
A. ski suit  B. heavy coat.
C. long sleeve shirt  D. shorts

26. When you measure the length of a table you find that it is 1 dam plus 1 m plus 1 dm plus 1 cm plus 1 mm long. What is its length in dam?
A. 0.1111 dam  B. 11.111 m
C. 1.1111 dam  D. 1.11 dam

27. Which of the following are not the same?
A. 1 liter and 1000 cm³  B. 1 ml and 1 cm³
C. 1 cl and 1 cc  D. 100 seconds and 1 hectosecond

28. The science process skill not used in the M&M activity was
A. classifying  B. observing
C. predicting  D. communicating

29. If your students were to measure a distance on the school playground that was over 30 meters long, the best choice for the instrument(s) to use are__________.
A. a meter stick  B. a meter stick and a trundle wheel
C. a meter stick and a roll of string  D. a ruler and a roll of string.

30. The prefix deci means ____________.
A. .1  B. 10
C. 100  D. 1000

31. The width of an adult hand is closest to a ____________.
A. decimeter  B. meter
C. centimeter  D. deciliter
32. What is normal body temperature?
   A. 98.6 °C  B. 37 °C
   C. 48 °C  D. none of the above

33. How many kilometers are in a centimeter?
   A. 10000  B. .0001
   C. .00001  D. none of the above

34. The nature of science is such that
   A. Eventually a scientific law becomes a scientific theory.
   B. Nature always obeys all the scientific laws.
   C. Scientific laws describe relationships observed in nature.
   D. Scientific theories are statements of absolute truth.

35. Scientific method involves each of the following except
   A. Systematic search for information.
   B. Reformulating observations to agree with scientific laws.
   C. Forming and testing possible solutions.
   D. Observation and experimentation.

36. In the Sinker experiment, the science process skill that was emphasized most was ________.
   A. Measuring  B. Observing
   C. Making models  D. Communicating

37. According to one of our experiments, if we increase the pressure on a confined gas, its volume
   __________.
   A. Decreases  B. Increases
   C. Nothing happens to the volume of the gas  D. You can't have a confined gas

38. If we have two isotopes of the same element, they differ in their:
   A. Number of protons  B. Number of electrons
   C. Number of neutrons  D. Mass number
   E. Both C & D.

Consider the symbolization for a particular isotope of copper shown below.

\[
\begin{array}{c}
\text{64} \\
\text{29} \\
\text{Cu}
\end{array}
\]

39. How many neutrons are in this isotope of copper?
   A. 64  B. 35
   C. 29  D. 93
   E. None of the above

40. How many electrons are in this isotope of copper?
   A. 64  B. 35
   C. 29  D. 93
   E. None of the above