

Make-up Exam 1

There is only one best answer to each question.

- 1) What details about atoms determine everything about the substance that the molecule composes?
 - a. State of the atoms, colors of the atoms in a molecule
 - b. How atoms bond together, the types of atoms in a molecule
 - c. State of the atoms, how atoms bond together
 - d. How atoms bond together, colors of the atoms in a molecule

- 2) What the following definition represents: "The result of collisions between gaseous molecules and the surfaces around them."
 - a. Pressure
 - b. Temperature
 - c. Density
 - d. Energy

- 3) What is scientific method?
 - a. A method of learning that emphasizes reason as the way to understand the world.
 - b. A method of learning that emphasizes intuition as the way to understand the world.
 - c. A method of learning that emphasizes observation and experimentation.
 - d. A method of learning that emphasizes instinct and primal needs.

- 4) Is the following statement True or False: "A good hypothesis is falsifiable, which means that future testing has the potential to prove it wrong"
 - a. True
 - b. False

- 5) What is the other name of scientific theories?
 - a. Hypothesis
 - b. Scientific law
 - c. Models
 - d. Tentative interpretations

- 6) What does the following definition represent: "They are carefully controlled observations, and they determine the validity of laws, hypotheses, and theories."
 - a. Scientific guesses
 - b. Scientific reasonings
 - c. Physical intuitions
 - d. Experiments

- 7) What does the following definition represent: "Is a standard, agreed-on quantity by which other quantities are measured"
- a. Unit
 - b. Scientific notation
 - c. Educated guess
 - d. Meter
- 8) Which of the following is NOT correct?
- a. 2.33 round to 2.3
 - b. 3.37 rounds to 3.4
 - c. 2.35 round to 2.4
 - d. 2.34 rounds to 2.4
- 9) Is the following statement True or False? "For calculations involving multiple steps, we round all the intermediate results. We also round the final answer."
- a. True
 - b. False
- 10) Is the following statement True or False? "By themselves, numbers give us all the information we need from a sentence, and therefore we can write numbers by themselves"
- a. True
 - b. False
- 11) What is the International System of units or SI units?
- a. The most convenient system for science measurements which is based on the metric system.
 - b. The measurement system used in many countries including the United States using feet, pounds, and seconds.
 - c. A system of measurement in use in United Kingdom consisting of units such as the inch, the mile, and the pound.
 - d. English system which uses units such as inches, yards, and pounds.
- 12) Which of the following statements is NOT correct?
- a. The base unit of time is an hour (hr)
 - b. The base unit of length is meter (m)
 - c. The base unit of mass is kilogram (kg)
 - d. All the above statements are correct
- 13) What does the prefix "kilo-" mean?
- a. 10^2
 - b. 10^{-2}
 - c. 10^{-3}
 - d. 10^3

- 14) What is the following property? "This property of a substance is the ratio of its mass to its volume."
- Force
 - Power
 - Density
 - Energy
- 15) Which of the following is NOT a step in a general problem-solving strategy?
- Identify the starting point (the given information)
 - Look at the problem statement, and guess the right solution based on the information provided
 - Identify the end point (what you must find)
 - Devise a way to get from the starting point to the end point using what is given as well as what you already know or can look up
- 16) Is the following statement True or False? "When converting quantities with units raised to a power, such as cubic centimeters (cm^3), you do not need to raise the conversion factor to that power."
- True
 - False
- 17) Which of the following definitions represents weight?
- A measure of the quantity of matter within an object
 - A measure of work has been done while exerting force to an object
 - A measure of the gravitational pull of the matter
 - A measure of collisions between molecules
- 18) How can we write very large (such as 14,000,000,000,000,000) or very small (such as 0.00000000000000000002) numbers more efficiently?
- Using metric system
 - Using English system
 - Using scientific notation
 - We should design our experiments in a way to avoid these numbers
- 19) Which of the following represents the precision of a measured quantity?
- Significant figures
 - Interior zeros
 - Trailing zeros
 - Scientific notation

20) Is the following statement True or False? "When a number is expressed in scientific notation, all trailing zeros are significant"

- a. True
- b. False

21) Exact numbers originate from all of these sources EXCEPT:

- a. Exact counting of discrete numbers
- b. Defined quantities
- c. Integral numbers that are part of an equation
- d. Measured quantities

22) Is the following statement True or False? "In multiplication and division, we focus on decimal points, in the same way that in addition and subtraction we focus on decimal points"

- a. True
- b. False

23) Perform the following calculations to the correct number of significant figures:

$$6.78 \times 5.903 \times (5.489 - 5.01)$$

- a. 19.17
- b. 19.1707
- c. 19
- d. 19.2

24) What is the scientific notation of 0.00034?

- a. 3×10^{-4}
- b. 3.4×10^4
- c. 3.4×10^{-4}
- d. 3×10^4

25) Which of the following represents a derived unit?

- a. Kilogram
- b. Meter
- c. Second
- d. Cubic centimeters (cm^3)