

PRACTICE QUESTIONS 2025

Practice Questions:

1. What is the chemical symbol for "Gold"?

- a. G
- b. Au *
- c. O
- d. Gd

2. If we are given 100 grams of sodium, what would the equivalent be in kilograms?

- a. 1000
- b. 10
- c. 1 *
- d. .01

3. The common name for $C_6H_{12}O_6$ is?

- a. Air
- b. Sugar *
- c. Calcium
- d. Water

4. In the event of a chemical reaction, the overall mass...

- a. Stays the same *
- b. Increases every time
- c. Decrease
- d. Only decrease when gasses are involved

5. When solid sugar is added to liquid water, the sugar...

- a. Gets eaten by the water
- b. Evaporates into the air
- c. Dissolves into the water *
- d. Encases oxygen being released from the solution

6. When mixing liquids, the ----- is the substance mixed in

- a. Solvent
- b. Solute *
- c. Solution
- d. Product

7. Once a reaction happens, the new substance can be referred to as a...

- a. Solvent
- b. Solute
- c. Solution *
- d. Product

8. What elements make up Acetic Acid (vinegar) $C_2H_4O_2$?

- a. Acid, Carbon, Oxygen, Hydrogen
- b. Carbon, Acetic, oxygen, hydrogen
- c. Acetic Acid
- d. Carbon, Oxygen, Hydrogen *

9. Are new elements are created when a chemical reaction happens?

- a. Yes, Always
- b. Sometimes, if Oxygen is involved
- c. Most times, due to the use of heat
- d. No, Never *

10. Are new substances are created when a chemical reaction happens?

- a. Yes, Always
- b. Sometimes, if Oxygen is involved
- c. Most times, due to the reaction *
- d. No, Never

11. The number of elements will ----- after a chemical reaction has occurred.

- a. Increase
- b. Decrease
- c. Stay the same *
- d. Drop to zero

12. What elements make up Sodium Bicarbonate (Baking Soda) NaHCO_3 ?

- a. Sodium, Hydrogen, Carbon, Oxygen *
- b. Sodium, Carbon
- c. Sodium, Hydrogen, Bicarbon, Oxygenate
- d. Sodium, Bicarbon, Oxygenate

13. The Law of Conservation of Mass states that: Matter...

- a. Is always created
- b. Constantly destroyed
- c. Constantly created and then destroyed
- d. Neither created or destroyed *

14. The number of components will ----- than the number of products.

- a. Increase
- b. Decrease
- c. Stay the same
- d. All above are possible outcomes *

15. What makes up all things visible in the known universe?

- a. Matter *
- b. Dark energy
- c. Space
- d. Solids

16. What cannot be created or destroyed, it can only change forms?

- a. Matter *
- b. Electric
- c. Heat
- d. Gravity

17. When a substance changes from a solid to a liquid, that is an example of a ----- change.

- a. Chemical
- b. Physical *
- c. Nocturnal
- d. Conservation

18. When Carbon Dioxide and Water combine to create sugar and oxygen, it is considered a ----- change.

- a. Chemical *
- b. Physical
- c. Nocturnal
- d. Conservation

19. Looking at the chemical equation for photosynthesis, how many atoms of carbon do we have on each side of the equation?

Chemical Equation



- a. 6 *
- b. 12
- c. 36
- d. None

20. When an animal eats, the food is broken down and used to power the body. The matter that makes up the food...

- a. Becomes part of the body
- b. Exits the body
- c. Both *
- d. Neither

21. Matter cycles through the universe...

- a. in different forms *
- b. as a solid
- c. as a liquid
- d. as a solid and a liquid only

22. Normal matter makes up ----- % of the universe.

- a. 5 *
- b. 25
- c. 70
- d. 100

23. In a reaction, what do you do with the mass of the container that the substances are in?

- a. Add it in most times
- b. Remove it from the total *
- c. Count it before, but not after
- d. Count it in the before an after

24. The rock cycle ----- follows the Law of Conservation of matter.

- a. Always *
- b. Mostly
- c. Sometimes doesn't
- d. Never

25. The water cycle ----- follows the Law of Conservation of matter.

- a. Always *
- b. Mostly
- c. Sometimes doesn't
- d. Never

26. When mixing substances, the ----- is the substance that absorbs the other substances.

- a. Solvent *
- b. Solute
- c. Solution
- d. Product

27. When a substance is arranged in a repeating pattern and is held firmly in place, but can vibrate in a limited area, it's state of matter would be...

- a. Solid *
- b. Liquid
- c. Gas
- d. Plasma

28. When a substance flows easily past each other and takes the shape of its container, it's state of matter would be...

- a. Solid
- b. Liquid *
- c. Gas
- d. Plasma

29. When a substance has minimal attractive forces, and fills any open space, its state of matter is...

- a. Solid
- b. Liquid
- c. Gas *
- d. Plasma

30. When methane (CH_4) reacts with oxygen (O_2), it yields carbon dioxide (CO_2) and water. How many carbon dioxide and water molecules would be created?

- a. 2 carbon dioxide and 1 water
- b. 2 carbon dioxide and 2 water
- c. 1 carbon dioxide and 2 water *
- d. 1 carbon dioxide and 1 water

31. HCl reacting with NaOH would yield what possible results?

- a. H_2O , Cl_2 , Na
- b. H_2O , NaCl *
- c. Na_3 , Cl_3 , H_2O
- d. H_3Cl , NaO

32. What is the chemical symbol for Sodium?

- a. S
- b. Sa
- c. Um
- d. Na *

33. How many water atoms could be created from 8 oxygen atoms, 10 hydrogen atoms, and 4 chlorine atoms?

- a. 5 *
- b. 8
- c. 10
- d. 18

34. At the beginning of a chemical reaction, you have 235 oxygen atoms. At the end of the experiment, you should have...

- a. More oxygen atoms
- b. The same amount of oxygen atoms *
- c. Less oxygen atoms
- d. No oxygen atoms, they were used up

35. While making popsicles, you use 10 grams of strawberries, and 50 grams of yogurt, stick a popsicle stick in it, and then let it freeze. When you weigh it, you notice the popsicle weighs 61.3 grams, when it should weigh 60 grams. What happened?

- a. Gravity pulls more on a solid, increasing the weight
- b. The strawberries condensed, creating more mass.
- c. Yogurt adds mass when it is frozen
- d. You did not account for the mass of the popsicle stick *

36. A cat with the mass of 4,000 grams gets a haircut and rinse. When measuring its mass after, it weighs 4,200 grams. How is this possible?

- a. The water left on it adds 200 grams *
- b. It was laying down, so it increased the mass by 200 grams
- c. They took a collar off of the cat that weighed 200 grams
- d. It was later in the day, so gravity increased its mass

37. How many carbon dioxide atoms could be created from 8 oxygen atoms and 3 carbon atoms?

- a. 3 *
- b. 5
- c. 8
- d. 11

38. Which element is balanced in the unbalanced equation: $\text{CH}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$

- a. Carbon *
- b. Hydrogen
- c. Oxygen
- d. Two

39. While conducting an experiment, 40 grams of ice is melted into water. The end result is 38 grams of water. Which explanation is illogical?

- a. Some of the water could have sweated through the cup, being lost in the final measurement
- b. The lost two grams were gasses trapped in the ice and was released into the atmosphere
- c. When waters is condensed the mass is greater resulting in a loss of mass when it turns into liquid form *
- d. The water could have been spilled or lost when transferring to measure the mass

40. The following equation is balanced: $2\text{HCl} + 2\text{Na} \rightarrow 2\text{NaCl} + \text{H}_2$

Why isn't there a "2" coefficient by the Hydrogen product?

- a. You do not need two Hydrogens to make the equations balanced
- b. You have to account for the other Hydrogens in the product
- c. Hydrogen is exempt from the Law of Conservation
- d. The subscript means there are two Hydrogen atoms *

41. When looking at the products of a chemical reaction...

- a. The number of products must be equal (2 reactants, 2 products)
- b. The number of atoms must be equal on each side of the equation *
- c. There must be Hydrogen in the answer since it is the basic element
- d. Must experience heat to create new products

42. How would you balance the following equation: $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$

- a. $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$ *
- b. $\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$
- c. $\text{Na} + \text{Cl}_2 \rightarrow \text{Na}_2\text{Cl}$
- d. $2\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$

43. Why is it important for a chemical equation to be balanced?

- a. To keep explosions from happening, which could cause unaccounted atom loss
- b. So that nothing is oxidized incorrectly
- c. So that the subscripts add up to the total of the coefficients
- d. To ensure the same amount of atoms are present before and after the reaction *

44. When balancing a chemical reaction...

- a. You can add coefficients to molecules *
- b. You can add to the subscripts to molecules
- c. You can subtract the subscripts to molecules
- d. You can add coefficients and subscripts to molecules

45. If 10 grams of NaOH reacts with 12 grams of HCl producing 8 grams of NaCl, how many grams of H₂O are produced?

- a. 10 grams
- b. 12 grams
- c. 14 grams *
- d. 18 grams