

CH 6 CHEMISTRY & CHEMICAL SAFETY

MULTIPLE CHOICE

1. **Beauty and wellness professionals should study and have a thorough understanding of chemistry because _____.** _____
 - a. every product used in the beauty industry contains some type of chemical
 - b. chemistry experiments are often regular practice at salons and spas
 - c. clients often quiz beauty and wellness professionals on this important knowledge
 - d. it is unrelated to the safe operation of a salon or spa

2. **The effects of cosmetics and beauty products are based on how _____.** _____
 - a. the body reacts to chemicals
 - b. pleased the beauty and wellness professional is with the results
 - c. friends and family members react to a new look
 - d. favorably the new styles compare with the old

3. **Creams, lotions, masks, and makeup _____.** _____
 - a. never contain chemicals
 - b. only contain chemicals if they are not made from natural sources such as plant extracts
 - c. only contain chemicals if they come from ingredients manufactured in a laboratory
 - d. contain chemicals whether they come from natural sources or from ingredients manufactured in a laboratory

4. **Which of the following is defined as any substance that occupies space and has weight?** _____
 - a. Potentially dangerous
 - b. Matter
 - c. A chemical
 - d. A beauty product

5. **Everything you can touch and everything you can see is matter EXCEPT for which of the following?** _____
- a. Light and electricity
 - b. Chemicals and powders
 - c. Living and once-living bodies
 - d. Liquids and gases
6. _____ **is the simplest form of chemical matter.** _____
- a. A chemical
 - b. A liquid
 - c. An element
 - d. A gas
7. **There are _____ elements are known to science today.** _____
- a. 118
 - b. 81
 - c. 18
 - d. 108
8. **Of all the elements known to science today, _____ occur naturally on Earth.** _____
- a. 89
 - b. 18
 - c. 98
 - d. 19
9. **Which of the following are defined as the basic units of matter?** _____
- a. Atoms
 - b. Neutrons
 - c. Electrons
 - d. Protons
10. _____ **is an example of a compound molecule.** _____
- a. Pure nitrogen
 - b. Common table salt
 - c. The oxygen we breathe
 - d. The ozone layer
11. _____ **is an example of a compound molecule.** _____
- a. Ice melting to become water
 - b. Water evaporating into the air
 - c. Exposed metal rusting
 - d. Liquid nail polish hardening

- 12. When salt is dissolved into water, _____.** _____
- a. salt and water are both solvents
 - b. salt is the solute and water is the solvent
 - c. water is the solute and salt is the solvent
 - d. salt and water are both solutes
- 13. All liquids are _____.** _____
- a. immiscible
 - b. both miscible and immiscible
 - c. miscible
 - d. either miscible or immiscible
- 14. What do immiscible liquids form when they are combined?** _____
- a. Suspensions
 - b. Miscible liquids
 - c. Stable mixtures
 - d. Solutions
- 15. A solute is a _____.** _____
- a. stable physical mixture of two or more substances
 - b. substance that is dissolved in a solution
 - c. substance that dissolves a solvent and makes a solution
 - d. liquid not capable of being mixed to form a stable solution
- 16. A solvent is any _____.** _____
- a. liquid not capable of being mixed to form a stable solution
 - b. substance dissolved into a solution
 - c. substance that dissolves a solute and makes a solution
 - d. stable physical mixture of two or more substances
- 17. Which of the following is TRUE of solutions?** _____
- a. They are immiscible.
 - b. They are usually a solid color.
 - c. They are surfactants.
 - d. They are stable mixtures.
- 18. The very first surfactants were _____.** _____
- a. cooking oils
 - b. motor oils
 - c. nail polishes
 - d. soaps
- 19. What is the overexposure principle used to describe?** _____
- a. How overexposure determines safety
 - b. How overexposure determines toxicity
 - c. How overexposure determines tolerance
 - d. How overexposure determines immunity

- 20. What is pH is an abbreviation of?** _____
- a. Productively high
 - b. Pure hydrochloric acid
 - c. Probable H₂O
 - d. Potential hydrogen
- 21. Understanding pH is important for the beauty and wellness professional because _____.** _____
- a. it affects the hair, skin, and nails
 - b. all salon owners require it
 - c. it is essential for passing all exams
 - d. it is directly related to income potential
- 22. What is the pH scale used to measure?** _____
- a. Levels of carbon dioxide
 - b. Overexposure and underexposure
 - c. Acidity and alkalinity
 - d. Levels of oxygen
- 23. To which of the following do all acids owe their chemical reactivity?** _____
- a. Alkalis
 - b. The hydrogen ion
 - c. Oxygen
 - d. Overexposure
- 24. Among the following choices, acids would MOST likely be used to _____.** _____
- a. soften calloused skin
 - b. raise the pH of products
 - c. exfoliate the skin
 - d. swell the hair
- 25. If your client requests that you use a solution that is neutral to his skin, which of the following pHs should you be using?** _____
- a. A pH of 7
 - b. A pH of 0
 - c. A pH of 14
 - d. A pH of 5
- 26. Acid-alkali neutralization reactions occur when an acid is mixed with an alkali in equal proportions, balancing the total pH and forming water (H₂O) and _____.** _____
- a. a sulfur
 - b. carbon dioxide
 - c. nitrogen
 - d. a salt

27. An oxidizing agent _____ oxygen. _____
a. releases
b. nullifies
c. increases
d. absorbs
28. A reducing agent _____. _____
a. subtracts nitrogen from a chemical compound
b. adds hydrogen to a chemical compound
c. adds oxygen to a chemical compound
d. subtracts hydrogen from a chemical compound
29. During combustion of a substance, _____
_____ accompanies the rapid oxidation. _____
a. an ionization of the substance
b. an endothermic reaction
c. neutralization
d. the production of heat and light
30. If you left the freezer door open all night at work, all of
the ice you had in the freezer for after hair removal services
would probably melt. This would be a result of _____. _____
a. an exothermic reaction
b. an endothermic reaction
c. neutralization
d. ionization
31. Which of the following is TRUE of products that are
incompatible? _____
a. They are always considered dangerous.
b. They should never be used on clients.
c. No two should be stored next to each other.
d. They can be safely mixed with proper precautions.
32. Hydrogen peroxide should never be mixed with bleach
because _____. _____
a. it dries out hair excessively
b. they become unpredictable in their use
c. it creates a potentially deadly gas
d. it "discolors" more than lightens the hair
33. Which of the following should you be sure to do when
mixing chemicals? _____
a. Never use secondary containers, such as spray bottles.
b. Add the water to the chemical, not the other way around.
c. Use a measuring device, such as a measuring cup or spoon.
d. Avoid rooms or areas that are well ventilated.

34. _____ for the disposal of many of the chemicals used in salons or spas. _____
- Most states and counties do not have regulations in place
 - There are no regulations in place anywhere across the United States
 - There are strict and universal regulations in place across the United States
 - Most states and counties have regulations in place
35. Guidelines for properly storing chemicals do NOT include _____. _____
- to never haphazardly combine two chemicals
 - to never dispose of chemicals in their original containers
 - to never allow chemicals to sit out
 - to always lock up chemicals when not in use
36. The Safety Data Sheet (SDS) replaced the _____. _____
- National Institute of Health (NIH)
 - Environmental Protection Agency (EPA)
 - Material Safety Data Sheet (MSDS)
 - Occupational Safety and Health Administration (OSHA)
37. How many categories are all SDSs formatted into? _____
- 8
 - 16
 - 12
 - 10
38. There are _____ accepted pictograms included in all SDSs. _____
- 16
 - 6
 - 3
 - 9
39. SDSs are designed for _____. _____
- use in an emergency
 - use only by new employees
 - everyday use
 - use only by managers
40. In the uniform order of the SDS, _____ comes immediately after the first category of "Identification." _____
- First-Aid Measures
 - Disposal Considerations
 - Hazard Identification
 - Toxicology Information

- 41. A carcinogen is BEST described as a _____.** _____
- a. substance that is made of carbon
 - b. material that is very easy to ignite
 - c. substance that causes cancer
 - d. material capable of igniting or burning
- 42. Which of the following is capable of igniting and burning?** _____
- a. A carcinogen
 - b. A chemical
 - c. A combustible
 - d. A mutagen
- 43. If you were the owner of the local spa, why would it be so important that you insist that for every chemical used there is an SDS available?** _____
- a. Because most clients will insist on it
 - b. Because it is a requirement of OSHA
 - c. Because it is the most cost-effective policy
 - d. Because it enhances the image of the business