17. Which of the following is the structure of a synthetic detergent (alkylbenzene sulfonate)?
   a. \[ \text{O} \]
   \[
   \text{CH}_3\text{(CH}_2\text{)}_{12} - \text{C} - \text{O}^- \text{Na}^+
   \]
   b. \[ \text{O} \]
   \[
   \text{CH}_3\text{(CH}_2\text{)}_{12} - \text{C} - \text{OH}
   \]
   c. \[ \text{O} \]
   \[
   \text{CH}_3\text{(CH}_2\text{)}_{12} - \text{S} - \text{O}^- \text{Na}^+
   \]
   d. \[ \text{O} \]
   \[
   \text{CH}_3\text{(CH}_2\text{)}_{10} - \text{C} - \text{O}^- \text{K}^+
   \]

18. One example of a colloid (other than soapy water) is:
   a. fog (water particles dispersed throughout air)
   b. milk (fat particles spread throughout water)
   c. whipped cream (air dispersed in cream)
   d. all of the above

19. The mathematical definition of density is:
   a. The mass of an object in grams
   b. mass/volume
   c. The volume of an object in milliliters
   d. mass/volume

20. An object will float in water if:
   a. It is less dense than water.
   b. Its total mass is less than the mass of the water.
   c. It is more dense than water.
   d. Its surface tension is less than the surface tension of the water.

21. How many valence electrons does a rubidium (Rb) atom have?
   a. 1
   b. 8
   c. 9
   d. 18

22. What is the correct formula for the compound formed between Fe\(^{3+}\) and oxide ions?
   a. \(\text{FeO}\)
   b. \(\text{Fe}_2\text{O}_3\)
   c. \(\text{Fe}_3\text{O}_4\)
   d. \(\text{Fe}_2\text{O}_3\)

23. Which of the following is a covalently bonded compound?
   a. \(\text{Ga}_2\text{O}_3\)
   b. \(\text{BF}_3\)
   c. \(\text{AlCl}_3\)
   d. \(\text{CaO}\)

24. A polar covalent bond is:
   a. A bond between two negatively charged ions.
   b. A bond between two nonmetals in which electrons are unequally shared between the atoms.
   c. A bond between two metals in which electrons are unequally shared between the atoms.
   d. A bond between any two atoms where a hydrogen ion is shared between the atoms.

25. The original version of the periodic table was arranged in order of:
   a. Increasing atomic number.
   b. Increasing number of protons.
   c. Increasing mass number.
   d. Increasing number of neutrons.