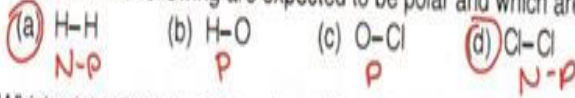
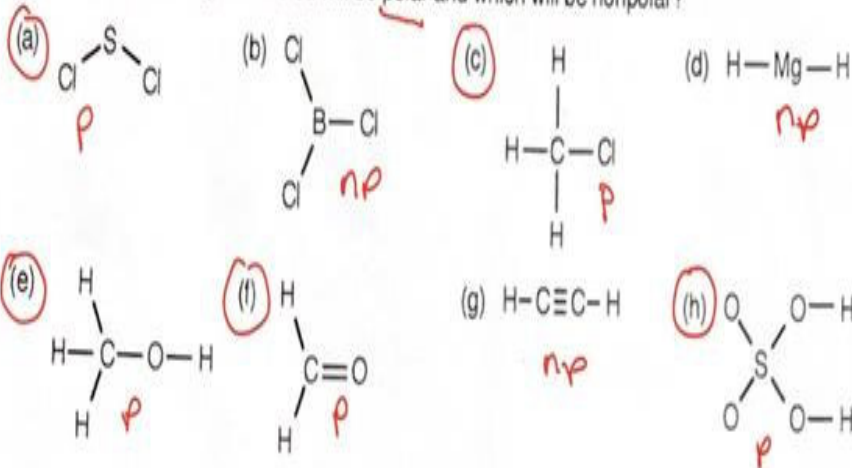


**EXERCISE:**

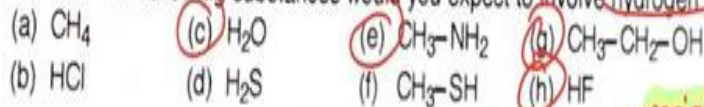
9. Which of the following are expected to be polar and which are expected to be nonpolar?



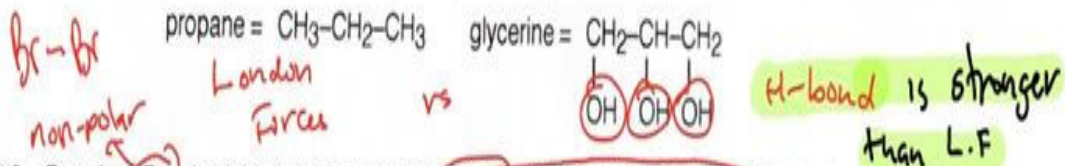
10. Which of the following molecules will be polar and which will be nonpolar?



14. Which of the following substances would you expect to involve hydrogen bonds?



15. Suggest a reason why liquid propane has a very low viscosity, whereas liquid glycerine has a very high viscosity.



18. Bromine ( $\text{Br}_2$ ) is highly soluble in hexane ( $\text{C}_6\text{H}_{14} = \text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ ) but only slightly soluble in water. Why might this situation occur? "Solvent" non-polar

19. What advantage might a molecule have as a solvent if it had a long nonpolar carbon chain ending with an ionic group, such as  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{COO}^-\text{Na}^+$ ? hybrid molecules

20. Why can't a nonpolar solvent dissolve an ionic compound? permanent dipole: polar

21. Why is the polar solvent water able to dissolve small amounts of nonpolar liquid pentane,  $\text{C}_5\text{H}_{12}(\text{l})$ ? H-bond > L.F

22. You have water, methanol ( $\text{CH}_3\text{OH}$ ) and ethanol ( $\text{CH}_3\text{CH}_2\text{OH}$ ) available to act as solvents. Which of these three solvents do you expect to dissolve the greatest amount of each of the following?

