6. What is the difference between a crystalline solid and an amorphous solid?

7. What is surface tension? How does it depend on intermolecular forces?

8. What is viscosity? How does it depend on intermolecular forces?

9. What is evaporation? Condensation?

11. Explain the difference between evaporation below the boiling point of a liquid and evaporation at the boiling point of a liquid.

12. What is the boiling point of a liquid? What is the normal boiling point?

21. Is the melting of ice endothermic or exothermic? What is the sign of ΔH for the melting of ice? For the freezing of water?

22. Is the boiling of water endothermic or exothermic? What is the sign of ΔH for the boiling of water? For the condensation of steam?

25. What is hydrogen bonding? How can you tell whether a compound has hydrogen bonding?

28. What is a molecular solid? What kinds of forces hold molecular solids together?

49. How much heat is required to vaporize 33.8 g of water at 100 °C? (Look up ΔH_{vap} for water)

53. How much heat is emitted when 4.25 g of water condenses at 25 °C? (Look up ΔH_{vap} for water)

57. How much heat is required to melt 37.4 g of ice at 0 °C? (Look up ΔH_{fus} for water)

59. How much energy is released when 34.2 g of water freezes? (Look up ΔH_{fus} for water)

63. What kinds of intermolecular forces are present in each substance?

(a) Kr
(b) N_2
(c) CO
(d) HF

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65. What kinds of intermolecular forces are present in each substance?

(a) NCl_3 (trigonal pyramidal)
(b) NH_3 (trigonal pyramidal)
(c) SiH_4 (tetrahedral)
(d) CCl_4 (tetrahedral)

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67. What kinds of intermolecular forces are present in a mixture of potassium chloride and water?

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69. Which substance has the highest boiling point? Why? *Hint:* They are all nonpolar.

(a) CH_4
(b) CH_3CH_3
(c) $CH_3CH_2CH_3$
(d) $CH_3CH_2CH_2CH_3$

72. One of these two substances is a liquid at room temperature and the other one is a gas. Which one is the liquid and why?

CH_3OCH_3 CH_3CH_2OH

73. A flask containing a mixture of $NH_3(g)$ and $CH_4(g)$ is cooled. At −33.3 °C a liquid begins to form in the flask. What is the liquid?

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75. Are $CH_3CH_2CH_2CH_2CH_3$ and H_2O miscible?

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77. Determine whether a homogeneous solution forms when each pair of substances is mixed.

(a) CCl_4 and H_2O
(b) Br_2 and CCl_4
(c) CH_3CH_2OH and H_2O

79. Identify each solid as molecular, ionic, or atomic.

(a) $Ar(s)$
(b) $H_2O(s)$
(c) $K_2O(s)$
(d) $Fe(s)$

97. Draw a Lewis structure for each molecule and determine its molecular geometry. What kind of intermolecular forces are present in each substance?

(a) H_2Se
(b) SO_2
(c) $CHCl_3$
(d) CO_2