

## Exercise 9.21 – Volatility of organic compounds

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**Q921-01** Which property is generally characteristic of an organic compound?

- A. low melting point
  - B. high melting point
  - C. soluble in polar solvents
  - D. insoluble in non-polar solvents
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**Q921-02** Which of the following compounds would have the highest boiling point?

- A.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
  - B.  $\text{CH}_3\text{NH}_2$
  - C.  $\text{CH}_3\text{OH}$
  - D.  $\text{CH}_2\text{F}_2$
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**Q921-03** The compounds pentane and 2-methylbutane would be expected to have the same

- A. boiling points
  - B. solubility in benzene
  - C. structural formulae
  - D. percentage composition
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**Q921-04** Which one of the following substances could be expected to have the highest boiling point at one atmosphere pressure?

- A.  $\text{CH}_3(\text{CH}_2)_2\text{CH}_3$
  - B.  $\text{CH}_3(\text{CH}_2)_3\text{CH}_3$
  - C.  $(\text{CH}_3)_2\text{CHCH}_2\text{CH}_3$
  - D.  $(\text{CH}_3)_4\text{C}$
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**Q921-05** In which pair for both types of compound take part in hydrogen bonding?

- A. Alkanals and esters
  - B. Bromoalkanes and alkanals
  - C. Alkanes and alkenes
  - D. Alkanols and amines
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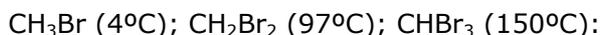
**Q921-06** Which compound has the lowest boiling point?

- A.  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3$
  - B.  $(\text{CH}_3)_4\text{C}$
  - C.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
  - D.  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$
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**Q921-07** The boiling points of several bromoalkanes are given below:



The increase in boiling point is best attributed to changes in the strengths of:

- A. Covalent bonds
  - B. Permanent dipole-dipole interactions
  - C. Hydrogen bonds
  - D. Van der Waal's forces
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**Q921-08** When the compounds below are listed in order of decreasing boiling point (highest to lowest) what is the correct order?

1. ethane 2. fluoroethane 3. ethanol 4. ethanoic acid

- A. 4,3,1,2
  - B. 4,3,2,1
  - C. 3,4,1,2
  - D. 2,1,3,4
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**Q921-09** The following compounds have similar molar masses. Which compound has the highest boiling point?

- A.  $\text{CH}_3\text{COOH}$
  - B.  $\text{C}_2\text{H}_5\text{OCH}_3$
  - C.  $\text{CH}_3\text{COCH}_3$
  - D.  $\text{C}_2\text{H}_5\text{Cl}$
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**Q921-10** List the following substances in order of increasing boiling point (lowest first).

$\text{CH}_3\text{CHO}$   
 $\text{C}_2\text{H}_6$   
 $\text{CH}_3\text{COOH}$   
 $\text{C}_2\text{H}_5\text{OH}$

State whether each compound is polar or non-polar and explain the order of boiling point above.

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