

## Exercise 9.51 – Basic principles of synthesis

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**Q951-01** Compared to the rate of inorganic reactions, the rate of organic reactions generally is:

- A. slower because organic particles are ions
  - B. slower because organic particles contain covalent bonds
  - C. faster because organic particles are ions
  - D. faster because organic particles contain covalent bonds
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**Q951-02** During fractional distillation, hydrocarbons are separated according to their:

- A. boiling points
  - B. melting points
  - C. triple points
  - D. saturation points
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**Q951-03** What is the correct order of reaction types in the following sequence:



- I ----- II ----- III
- A. Substitution ---- oxidation ---- esterification
  - B. Addition ---- substitution ---- substitution
  - C. Oxidation ---- substitution ---- addition
  - D. substitution ---- oxidation ---- substitution
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**Q951-04**  $\text{CH}_3\text{OH} + \text{CH}_3\text{CH}_2\text{COOH} \longrightarrow \text{CH}_3\text{CH}_2\text{COOCH}_3 + \text{H}_2\text{O}$

The forward reaction represented by the equation above is

- A. Addition
  - B. Esterification
  - C. Hydrolysis
  - D. Neutralisation
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**Q951-05** Which one of the following cannot be obtained by oxidising 2-methylpropan-1-ol under suitable conditions?

- A. An alkanal
  - B. An alkanone
  - C. An alkanolic acid
  - D. Carbon dioxide and water
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**Q951-06** Which reagent reacts with  $\text{CH}_3\text{CH}_2\text{COCH}_3$ ?

I  $\text{LiAlH}_4$

II  $\text{H}^+ / \text{K}_2\text{Cr}_2\text{O}_7$

- A. I only
  - B. II only
  - C. Both I and II
  - D. Neither I nor II
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**Q951-07** From which two chemicals could the compound  $\text{CH}_3(\text{CH}_2)_2\text{COO}(\text{CH}_2)_4\text{CH}_3$  be synthesised?

- A. Butanoic acid and pentan-1-ol
  - B. Butanoic acid and butan-1-ol
  - C. Butanal and pentan-1-ol
  - D. Pentanoic acid and butan-1-ol
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**Q951-08** A student made an impure organic compound. The melting point of the compound was less than that of the pure compound. All of the following procedures would change the melting point of the student's compound EXCEPT:

- A. drying the sample.
  - B. mixing the compound with the pure compound.
  - C. grinding the compound to a smaller particle size.
  - D. recrystallising the compound from an appropriate solvent.
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**Q951-09** Why is reflux often used in reactions involving organic compounds?

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**Q951-10** Which of the following is the best indicator of compound purity?

- A. melting point
  - B. colour
  - C. crystal appearance
  - D. chemical properties
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