

### Exercise 9.53 – Synthesis HL

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**Q953-01** Which of the following reagents could be used to convert 1-iodopropane to propene?

- A. dilute sodium hydroxide (aq)
  - B. potassium hydroxide in ethanol
  - C. calcium hydroxide
  - D. iron (III) hydroxide
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**Q953-02** The reaction  $\text{CH}_2\text{CH}_2 + \text{H}_2 \longrightarrow \text{CH}_3\text{CH}_3$  is an example of which type of reaction?

- A. substitution
  - B. addition
  - C. esterification
  - D. fermentation
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**Q953-03** What type of reaction is  $\text{CH}_3\text{CH}_3 + \text{Cl}_2 \longrightarrow \text{CH}_3\text{CH}_2\text{Cl} + \text{HCl}$ ?

- A. an addition reaction
  - B. a substitution reaction
  - C. a saponification reaction
  - D. an esterification reaction
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**Q953-04** Which class of organic compounds can be represented as R-OH?

- A. acids
  - B. alcohols
  - C. esters
  - D. ethers
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**Q953-05** What substance is made up of monomers joined together in long chains?

- A. ketone
  - B. protein
  - C. ester
  - D. acid
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**Q953-06** An organic substance reacts with acidified potassium dichromate(VI) solution on warming. Which of the following structures is/are possible for the organic compound?

- I.  $\text{CH}_3\text{OH}$
- II.  $(\text{CH}_3)_2\text{CHOH}$
- III.  $(\text{CH}_3)_3\text{COH}$

- A. I, II and III are correct.
  - B. I and II are correct.
  - C. II and III are correct.
  - D. I is the only correct response.
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**Q953-07** On oxidation, a compound  $C_4H_{10}O$  can be converted into a compound  $C_4H_8O$ . The original compound could be a

- I. primary alcohol
  - II. secondary alcohol
  - III. tertiary alcohol
- A. I, II and III are correct.  
B. I and II are correct.  
C. II and III are correct.  
D. I is the only correct response.
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**Q953-08** When a pentene and water react under appropriate conditions, compound X can be isolated. This compound can be oxidised by an acidic solution of potassium permanganate to compound Y. X and Y are:

Compound X & Compound Y

- A. alkanal & alkanone
  - B. alkanal & alkanol
  - C. alkanal & alkanone
  - D. alkanol & alkanone
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**Q953-09** Compound A reacted with reagent X to produce a compound which had a carbon chain length greater than the original compound A. Identify the homologous series of A, and suggest an identity for reagent X.

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**Q953-10** Dehydration of primary alcohols using concentrated acid may produce two different types of organic product. Using ethanol as the alcohol show how each type of organic product is formed.

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