

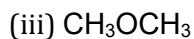
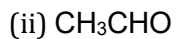
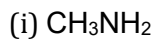
**Chemistry**  
**Standard level**  
**Paper 2**

Practice paper

**Topic: Models to Materials (SL)**

1. Organic molecules are classified by their functional groups.

(a) State the name of the functional group present in each of the following molecules: **[3]**



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(b) Explain how the Solubility of an organic molecule changes as the length of its non-polar carbon chain increases. **[2]**

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2. The macro-properties of polymers depend on their structure and intermolecular forces.

(a) Compare the structure of Low Density Polyethene (LDPE) and High Density Polyethene (HDPE). Explain how branching affects the closeness of chain packing. **[3]**

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(b) Deduce the effect of chain packing density on the strength of London dispersion forces between polymer chains.

[2]

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(c) Explain why Polyvinyl chloride (PVC) generally has a higher tensile strength and boiling point than Polyethene of a similar chain length.

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3. The recycling of metals and materials is vital for a sustainable future.

(a) Define the term 'alloy' and provide an example other than brass.

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(b) Describe the degradation of polymers through photo-oxidation and identify the main factor that initiates this process.

[2]

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