

Formative Test - Materials

1. Consider the polymer below:



- (a) Draw brackets around the repeating unit of the polymer. /1
 (b) Name the class to which the polymer belongs based on the reaction used in its formation. /1
 (c) Draw the structural formula of the monomer used to form the polymer. /2

2. Consider the monomers below:

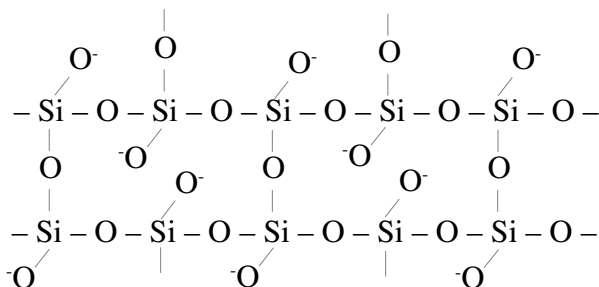


- (a) Draw the structural formula of the polymer they would form. /2
 (b) State whether the polymer is a polyester or a polyamide. /1

3. Compare the physical and structural properties of thermoplastic and thermoset polymers. /3

4.

- (a) Deduce the formula of the aluminosilicate ion in the mineral kaolinite, $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$. /2
 (b) Identify the repeating unit of the silicate below. /2



- (c) State the molecular formula of the silicate ion in (b). /1
 (d) Deduce the formula of a mineral containing the silicate in (c) and the cations Mg and K in 1:1 ratio. /2

5. Explain how cations in soil are made available to plants over time. /3

6. Explain whether you would use octane or water to scrub out a stain consisting mostly of benzene. /2

7. With a structural formula equation briefly describe the process of saponification. /3

8. Sodium palmitate ($\text{CH}_3(\text{CH}_2)_{14}\text{COONa}$) is a soap, but palmitic acid ($\text{CH}_3(\text{CH}_2)_{14}\text{COOH}$) is not. Explain. /3

9.

- (a) State two advantages of adding tripolyphosphate ions to detergent formulations. /2
 (b) State one disadvantage of the same. /1
 (c) Draw the structural formula for the linear tripolyphosphate ion. /2

10. With the aid of at least one equation, explain how hydrogen peroxide is able to remove stains. /3

TOTAL /36