

Q1.

Which polymer has hydrogen bonding between the polymer chains?

- A Kevlar
- B PVC
- C poly(phenylethene)
- D Terylene

(Total 1 mark)**Q2.**

Which is the repeating unit of a polyamide?

- A $\text{—CH}_2\text{—}\overset{\text{NH}_2}{\underset{|}{\text{CH}}}\text{—}$
- B $\text{—}\overset{\text{NH}_2}{\underset{|}{\text{CH}}}\text{—}\overset{\text{O}}{\parallel}{\text{C}}\text{—O—}$
- C $\text{—}\overset{\text{O}}{\parallel}{\text{C}}\text{—CH}_2\text{—}\overset{\text{O}}{\parallel}{\text{C}}\text{—O—CH}_2\text{—}\underset{\text{NH}_2}{\underset{|}{\text{CH}_2}}\text{—O—}$
- D $\text{—}\overset{\text{O}}{\parallel}{\text{C}}\text{—CH}_2\text{—}\overset{\text{O}}{\parallel}{\text{C}}\text{—}\underset{\text{H}}{\underset{|}{\text{N}}}\text{—CH}_2\text{—CH}_2\text{—}\underset{\text{H}}{\underset{|}{\text{N}}}\text{—}$

(Total 1 mark)

Q3.

Which type of polymer is **not** hydrolysed by heating with concentrated aqueous sodium hydroxide?

- A poly(alkene)
- B poly(amide)
- C poly(ester)
- D protein

(Total 1 mark)**Q4.**

Which forms a polymer with $\text{ClOC}(\text{CH}_2)_8\text{COCl}$?

- A $\text{NH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- B $(\text{CH}_3\text{CO})_2\text{O}$
- C $\text{CH}_3\text{CH}_2\text{CONH}_2$
- D $\text{NH}_2\text{CH}_2\text{COOH}$

(Total 1 mark)**Q5.**

Which polymer has hydrogen bonding between its chains?

- A Kevlar
- B Polythene
- C PVC
- D Terylene

(Total 1 mark)

Q6.

The repeating unit of a polymer is shown.



Which monomer or pair of monomers could be used to make this polymer?

A ClOC(CH₂)₄NH₂ only

B ClOC(CH₂)₄COCl only

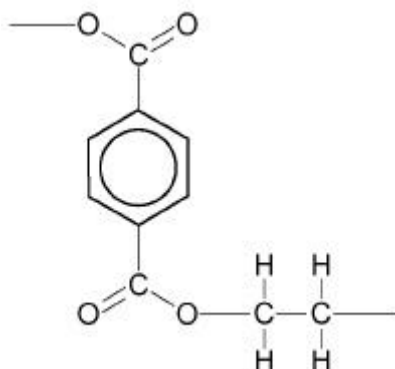
C ClOC(CH₂)₄COCl and H₂N(CH₂)₆NH₂

D ClOC(CH₂)₆COCl and H₂N(CH₂)₄NH₂

(Total 1 mark)

Q7.

The structure of part of a polyester chain is shown.



Which statement correctly explains why plastics made from this polyester only soften at high temperatures?

A Hydrogen bonds and van der Waals' forces exist between polyester chains.

B Permanent dipole-dipole forces and van der Waals' forces exist between polyester chains.

C The carbon-carbon bonds in the chain are strong.

D The carbon-oxygen bonds in the chain are strong.

(Total 1 mark)

Q8.

Which polymer is least likely to be biodegraded after several years in a landfill site?

- A Kevlar
- B Nylon
- C Polythene
- D Terylene

(Total 1 mark)

Q9.

Which compound can form a polymer without needing another reagent?

- A $\text{HOCH}_2\text{CH}_2\text{OH}$
- B $\text{HOOCCH}_2\text{CH}_2\text{COOH}$
- C $\text{HOCH}_2\text{CH}_2\text{COCl}$
- D $\text{ClCH}_2\text{CH}_2\text{COOH}$

(Total 1 mark)

Q10.

Which compound can polymerise by reaction with itself?

- A $\text{NH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- B $\text{CH}_3\text{CH}_2\text{CONH}_2$
- C $\text{HOOCCH}_2\text{COOH}$
- D $\text{NH}_2\text{CH}_2\text{COCl}$

(Total 1 mark)