

Past-paper walk-through

Addition polymerisation ■ 20.1

eXercise

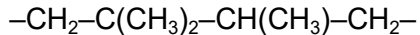
Questions in this set

- 9701/11 N25 Q32 ■ 1 mark
- 9701/12 N25 Q39 ■ 1 mark
- 9701/14 N25 Q39 ■ 1 mark

Question 32

9701/11 N25 ■ Q32 ■ 1 mark

32 A small section of a polymer produced from two monomers is shown.



What are the two monomers?

- A** but-1-ene and propene
- B** but-2-ene and propene
- C** ethene and pent-2-ene

D methylpropene and propene

Solution 32

Answer: **D**

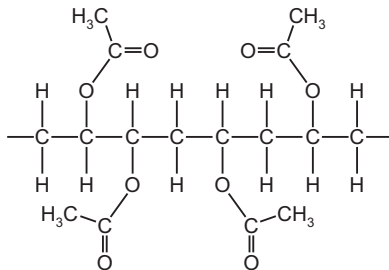
Why

- Break the chain into repeat units of two carbons each.
- $-\text{CH}_2-\text{C}(\text{CH}_3)_2-$ comes from $\text{CH}_2=\text{C}(\text{CH}_3)_2$, methylpropene.
- $-\text{CH}(\text{CH}_3)-\text{CH}_2-$ comes from propene.

Question 39

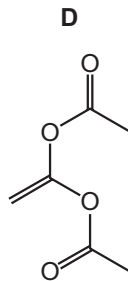
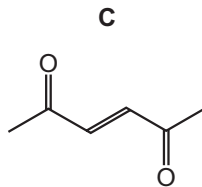
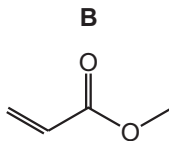
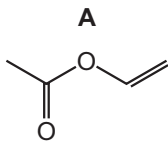
9701/12 N25 ■ Q39 ■ 1 mark

39 A section of an addition polymer is shown.



Which monomer is used to make this polymer?

Question 39



Solution 39

Answer: **A**

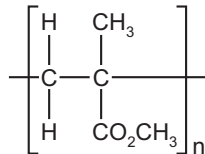
Why

- In addition polymerisation the monomer's $C=C$ becomes the backbone $C-C$ and nothing is lost.
- So restore the double bond between the two backbone carbons of the repeat unit.
- Every side group in the repeat unit must appear unchanged in the monomer.

Question 39

9701/14 N25 ■ Q39 ■ 1 mark

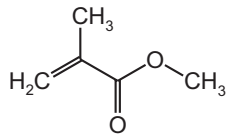
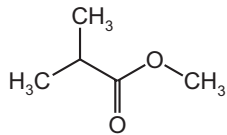
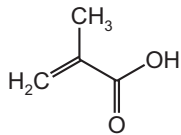
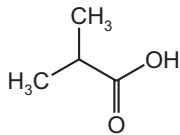
39 PMMA is a rigid polymer. The repeat unit of PMMA is shown.



Which monomer is used to make PMMA?

A**B****C****D**

Question 39



Solution 39

Answer: **D**

Why

- Addition polymerisation opens a $C=C$, so restore it between the two backbone carbons.
- The repeat unit $-CH_2-C(CH_3)(CO_2CH_3)-$ therefore comes from $CH_2=C(CH_3)CO_2CH_3$.
- The ester group is carried through unchanged.