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Question 35 (Answer: **A**)

- Addition polymerisation opens the C=C of each monomer and joins the carbons into a chain.
- Propene is $CH_2{=}CHCH_3$, so the repeat unit is $–CH_2–CH(CH_3)–$.
- The n must appear on both sides, and no small molecule is lost.

Question 38 (Answer: **D**)

- Addition polymers can contain other atoms too – PVC has chlorine in every repeat unit.
- A polyester is made from a diol and a dicarboxylic acid; it is a *polyamide* that needs a diamine.
- The real distinction is that condensation polymerisation always loses a small molecule and addition never does.

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Question 35 (Answer: **C**)

- To build a polymer with a dicarboxylic acid in a 1 : 1 ratio, each monomer needs *two* groups that react with –COOH.
- Both –OH and $–NH_2$ react with –COOH, so a diamine, a diol and an amino-alcohol all work.
- The monomer that already carries a –COOH has only one usable group left, so it cannot – three of the four qualify.

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Question 37 (Answer: **B**)

- The two monomers are a diol and a dicarboxylic acid, so the polymer is a polyester.
- Each link forms by losing water between an –OH and a –COOH group.
- So the repeat unit shows the ester linkage –COO– joining the two monomer residues.

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Question 37 (Answer: **B**)

- Look at the linkage in the repeat unit: –CO–NH– is an amide, so this is a polyamide like nylon.
- A polyamide is made from a diamine and a dicarboxylic acid.
- So pick the monomer pair with an $–NH_2$ at both ends of one and a –COOH at both ends of the other.

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Question 37 (Answer: **A**)

- Nylon is a polyamide, so its linkage is the amide –CO–NH–.
- A polyester is PET, whose linkage is –COO– and contains no C=C.
- Propane has no double bond, so it cannot polymerise by addition – propene can.

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Question 38 (Answer: **C**)

- Nylon is made from a diamine and a dicarboxylic acid, losing a small molecule at every link.
- That makes it condensation polymerisation, not addition.
- The small molecule lost is water.