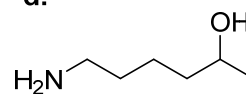
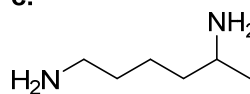
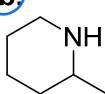
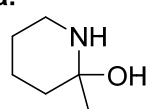
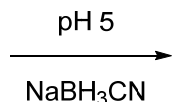
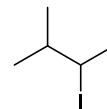
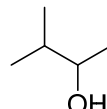
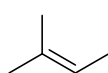
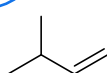
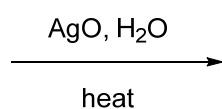
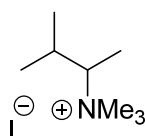


i.

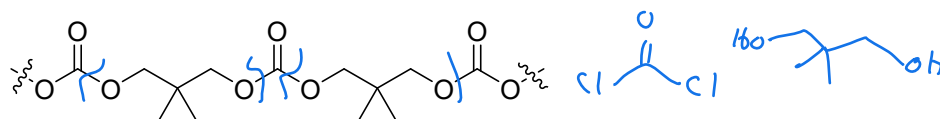


ii.



O=C1C(=O)CC(=O)CC(=O)CC1

b. Will this polymer form via **chain growth** or **step growth**? Briefly explain your choice. (2 points)



step growth - both ends of polymer have reactive functional group (acid chloride/alcohol)

The diagram illustrates the acid-catalyzed condensation of salicylaldehyde and phenol to form 2-hydroxy-2-phenylbenzyl alcohol. The reaction is shown with the following components:

- Reactants:** Salicylaldehyde (2-hydroxybenzaldehyde) and Phenol (hydroxybenzene).
- Catalyst:** $[H^+]$ (acid catalyst).
- Product:** 2-hydroxy-2-phenylbenzyl alcohol.
- Mechanism:**
 - Step 1:** Protonation of the carbonyl oxygen of salicylaldehyde by H^+ to form a resonance-stabilized cation.
 - Step 2:** Nucleophilic attack of the phenol ring on the carbonyl carbon of the protonated salicylaldehyde.
 - Step 3:** Proton transfer and subsequent loss of water to form a resonance-stabilized cation intermediate.
 - Step 4:** Final proton transfer to yield the neutral product, 2-hydroxy-2-phenylbenzyl alcohol.