Making Medicines: Answers

1. (a) It must be insoluble and resist attack by strong acid (and any other reagents that are to be used). [2]

(b) Nylon contains amide (CONH) linkages that can be broken by strong acids.

The only bonds in poly(ethene) are C–H and C–C, both of which are resistant to acids. [2]

(c) Many suggestions are possible. Examples include amide and ester linkages. [1]

2. (a) Propanoic acid: CH_3CH_2COOH, $M_r = 74$

Pentanol: $CH_3CH_2\ CH_2\ CH_2CH_2OH$, $M_r = 88$ [4]

(b) $CH_3CH_2COOH + CH_3CH_2CH_2CH_2CH_2OH \rightarrow CH_3CH_2COOCH_2CH_2CH_2CH_2CH_3 + H_2O$ [1]

(c) 74 mg [1]

(d) The reaction is reversible and does not go to completion. There will be losses during the practical procedure. [1]

(e) Sensible suggestions include the use of propanoyl chloride or propanoic anhydride instead of propanoic acid. [1]