| Question | Answers | Extra information | Marks | AO / Spec ref. |
| --- | --- | --- | --- | --- |
| **01** | ethene  poly(ethene)monosaccharide  celluloseamino acid  protein |  | 111 | AO1C7.3.1 |
| **02.1** | chloroethene | Accept vinyl chloride. | 1 | AO2C7.3.1 |
| **02.2** | Smooth line of best fit touching all points. | Do **not** accept ‘dot to dot’ lines. | 1 | AO3C7.3.1 |
| **02.3** | constant thickness **or** width of strip | Accept length. | 1 | AO3C7.3.1 |
| **02.4** | Subtracted initial length (or 10cm)from stretched length.  |  | 1 | AO3C7.3.1 |
| **02.5** | The strip snapped/broke. | Accept any sensible reason. | 1 | AO3C7.3.1 |
| **02.6** | poly(ethene)the graph/line/curve is steeper/rises more quickly | Accept ‘the extensions increase sooner/more quickly/with less force’. | 11 | AO3C7.3.1 |
| **03** | **Level 3 (5–6 marks):** there is a reasonably detailed description of the structure **and** explanation of the importance. | 6 | AO1 × 4AO2 × 2C7.3.4 |
| **Level 2 (3–4 marks):** there is a basic description of the structure **and** explanation of the importance. |
| **Level 1 (1–2 marks):** there is a basic description of the structure **or** explanation of the importance. |
| **Level 0 (0 marks):** no relevant content. |
| **Indicative content:**Structure:* large molecule
* polymer
* helix/spiral
* double/two chains
* four different monomers
* nucleotides
* intermolecular forces
* condensation polymerisation.

Importance:* essential for living things
* genetic instructions/genes
* controls development/function
* viruses.

This indicative content is not exhaustive, other creditworthy responses should be awarded marks as appropriate. |
| **04.1** | poly(tetrafluoroethene) | Brackets required. | 1 | AO2C7.3.1 |
| **04.2** | Many monomers/small molecules;join/form a long **or** large molecule/double bonds open up to link monomers. |  | 11 | AO2C7.3.1 |
| **04.3** | Four single bonded F atoms **and** two trailing bonds;brackets;subscript n after brackets. | Accept n after bracket if below halfway down. | 111 | AO2C7.3.1 |
| **05.1** | two different monomers **or** small molecule also formed |  | 1 | AO2C7.3.2 |
| **05.2** | Monomer A: alcoholMonomer B: carboxylic acid | Accept hydroxyl;accept carboxyl. | 11 | AO1C7.3.2 |
| **05.3** | polyester |  | 1 | AO1C7.3.2 |
| **05.4** | amino acid |  | 1 | AO1C7.3.3 |
| **05.5** | Single bond between C and N facing each other;double bond between this C and O **and** single bond between this N and H. |  | 11 | AO2C7.3.3 |
| **05.6** | water |  | 1 | AO2C7.3.3 |