| Question | Answers | Extra information | Marks | AO /  Spec ref. |
| --- | --- | --- | --- | --- |
| **01** | ethene  poly(ethene)  monosaccharide  cellulose  amino acid  protein |  | 1  1  1 | AO1  C7.3.1 |
| **02.1** | chloroethene | Accept vinyl chloride. | 1 | AO2  C7.3.1 |
| **02.2** | Smooth line of best fit touching all points. | Do **not** accept ‘dot to dot’ lines. | 1 | AO3  C7.3.1 |
| **02.3** | constant thickness **or** width of strip | Accept length. | 1 | AO3  C7.3.1 |
| **02.4** | Subtracted initial length (or 10cm)from stretched length. |  | 1 | AO3  C7.3.1 |
| **02.5** | The strip snapped/broke. | Accept any sensible reason. | 1 | AO3  C7.3.1 |
| **02.6** | poly(ethene)  the graph/line/curve is steeper/rises more quickly | Accept ‘the extensions increase sooner/more quickly/with less force’. | 1  1 | AO3  C7.3.1 |
| **03** | **Level 3 (5–6 marks):** there is a reasonably detailed description of the structure **and** explanation of the importance. | | 6 | AO1 × 4  AO2 × 2  C7.3.4 |
| **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 | AO2  C7.3.1 |
| **04.2** | Many monomers/small molecules;  join/form a long **or** large molecule/double bonds open up to link monomers. |  | 1  1 | AO2  C7.3.1 |
| **04.3** | Four single bonded F atoms **and** two trailing bonds;  brackets;  subscript n after brackets. | Accept n after bracket if below halfway down. | 1  1  1 | AO2  C7.3.1 |
| **05.1** | two different monomers **or** small molecule also formed |  | 1 | AO2  C7.3.2 |
| **05.2** | Monomer A: alcohol  Monomer B: carboxylic acid | Accept hydroxyl;  accept carboxyl. | 1  1 | AO1  C7.3.2 |
| **05.3** | polyester |  | 1 | AO1  C7.3.2 |
| **05.4** | amino acid |  | 1 | AO1  C7.3.3 |
| **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. |  | 1  1 | AO2  C7.3.3 |
| **05.6** | water |  | 1 | AO2  C7.3.3 |