| Question | Answer | Extra information | Marks | AO / Spec ref. |
| --- | --- | --- | --- | --- |
| **01.1** | ozone – destroys microorganismsdesalination – removes dissolved saltfiltering – removes solid particles |  | 111 | AO2×1AO1×2 |
| **01.2** | Any **one** of:* enough rainfall/ground water in UK
* seawater treatment uses a lot of energy.
 | Allowseawater treatment is expensive. | 1 | AO2C10.1.2 |
| **02.1** | natural: cotton/wool/silk/leatherfinite: polyester/nylon/acrylic | Allowany correct natural material;allowany correct oil-derived material. | 11 | AO2C10.1.2 |
| **02.2** | renewable – replaced as quickly as they are usedsustainable – available for future generations |  | 11 | AO1C10.1.1 |
| **03.1** | 13 (%) |  | 1 | AO1C10.1.1MS1c |
| **03.2** | extracting new iron causes serious pollutionreserves of copper ore will be conserved |  | 11 | AO1C10.1.1 |
| **03.3** | the price of copper has risen greatly |  | 1 | AO2C10.2.2 |
| **04** | A – salt waterB – steamC – distilled waterD – iced water |  | 1111 | AO3C10.1.2 |
| **05.1** | 2400 (%) | accept 2350–3200 | 1 | AO3C10.1.2MS1c |
| **05.2** | 30 | accept 20–40 | 1 | AO3C10.1.2MS4a |
| **05.3**  | Idea ofincreased demand. | Acceptmore cars/transport/uses for chemicals/polymers. | 1 | AO2C10.1.2 |
| **05.4** | Idea ofeasily accessible oil already discovered/used up. | Acceptmost oil discovered/used up. | 1 | AO2C10.1.2 |
| **05.5** | Any **two** from uncertainties about:* future demand for oil
* amount of oil remaining
* success of replacement by renewable energy.
 |  | 2 | AO2C10.1.1 |
| **06.1** | Idea ofmanufacturing and packaging;idea ofuse/maintenance/operation during lifetime. | Allow distribution;either order. | 11 | AO1C10.1.1 |
| **06.2** | **Level 3 (5–6 marks):** Reasonably detailed comparison of extraction/processing **and** disposal. | 6 | AO1×4AO2×2C10.2.1 |
| **Level 2 (3–4 marks):** Basic comparison of extraction/processing **and** disposal. |
| **Level 1 (1–2 marks):** Basic comparison of extraction/processing **or** disposal. |
| **Level 0 (0 marks):** No relevant content. |
| **Indicative content:**Extraction/processing poly(ethene):* (crude oil) is finite
* drilling/processing (oil)/distribution requires a lot of energy
* processing (oil).and sometimes distribution in oil tankers causes pollution.

Extraction/processing paper:* (wood) is renewable
* (wood) is more sustainable
* risk of pollution in rivers at paper mills
* land usage to grow trees is high/can’t be used for growing food crops.

Disposal of poly(ethene):* non-biodegradable
* visual pollution/pollutes sea/harming wildlife
* could be recycled
* could be burned
* releases energy if burned
* not carbon neutral
* uses landfill space.

Disposal of paper:* biodegradable
* is recycled
* (ignoring processing) carbon neutral.

This indicative content is not exhaustive, other creditworthy responses should be awarded marks as appropriate. |  |