| Question | Answer | Extra information | Marks | AO /  Spec ref. |
| --- | --- | --- | --- | --- |
| **01** | limestone  coal  plankton |  | 1  1  1 | AO1  C9.1.4 |
| **02.1** | changes in rainfall patterns  more extreme storms | Deduct mark for more than two boxes ticked | 1  1 | AO2  C9.2.3 |
| **02.2** | Fewer cows producing methane/ less deforestation.  Carbon neutral so does not add to CO2.  Less energy used/less fossil fuel burned in power stations/in homes so less CO2 released. | In this order. | 1  1  1 | AO3  C9.2.3 |
| **03** | carbon monoxide — less oxygen carried by red blood cells  carbon particles — sunlight reflected back into space  nitrogen oxides — damage to limestone buildings |  | 1  1  1 | AO2 C9.3.2 |
| **04.1** | methane and carbon dioxide | No mark if more than one box ticked . | 1 | AO1  C9.2.2 |
| **04.2** | peer-reviewed evidence | No marks if more than one box ticked . | 1 | AO1  C9.2.2 |
| **04.3** | the global climate system is very complex | No marks if more than one box ticked . | 1 | AO1  C9.2.2 |
| **05.1** | **Level 3 (5–6 marks):** Reasonably detailed description of at least **two** changes. | | 6 | AO1×2  AO2×2  AO3×2  C9.1.2  C9.1.3  C9.1.4 |
| **Level 2 (3–4 marks):** Reasonably detailed description of **one** change. | |
| **Level 1 (1–2 marks):** Basic description of **one** change. | |
| **Level 0 (0 marks):** No relevant content. | |
| **Indicative content:**   * oxygen increased because plants/algae developed and used carbon dioxide for photosynthesis/growth producing oxygen * carbon dioxide decreased because plants/algae developed and used carbon dioxide for photosynthesis/growth producing oxygen * carbon dioxide decreased because oceans formed and dissolved/absorbed carbon dioxide * carbon dioxide became locked up in sedimentary/carbonate rocks and/or fossil fuels * volcanoes also produced nitrogen which gradually built up in the atmosphere * ammonia reacted with oxygen to form nitrogen.   This indicative content is not exhaustive, other creditworthy responses should be awarded marks as appropriate. | |
| **05.2** | carbon dioxide  nitrogen  oxygen | In this order. | 1  1  1 | AO1  C9.1.1 |
| **05.3** | sulfur dioxide | Allow nitrogen oxides. | 1 | AO2  C9.3.2 |
| **05.4** | Any **two** from:   * idea of the removal of sulfur dioxide gas * idea of removing sulfur from fuels * using fuels with no sulfur content. |  | 1  1 | AO2  C9.3.2 |
| **05.5** | Idea of reduced photosynthesis of damaged plants;  so less carbon dioxide removed from the atmosphere. |  | 1  1 | AO2  C9.1.4  C9.2.2 |
| **05.6** | carbon monoxide  unburnt hydrocarbons/solid particles/carbon |  | 1  1 | AO1  C9.3.2 |