**Global systems**

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| Instructions to students  • You have 50 minutes to complete the test.  • Please answer all questions in the spaces provided.  • There is to be no talking during the test. | Marks  Section I: Multiple-choice questions: 10 marks  Section II: Short-answer questions: 33 marks  Section III: Extended-response questions: 7 marks  Total: 50 marks |

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| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Score: /50  Grade: % |
| Comments: | |

Section I: Multiple-choice questions

For each question, circle the correct answer.

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| 1 All of Earth’s water makes up the: | | CT0501_07059-rm |
| A | hydrosphere. |
| B | biosphere. |
| C | lithosphere. |
| D | atmosphere. |
| 2 The most important gas for the survival of all animals is: | | |
| A | nitrogen. | |
| B | carbon dioxide. | |
| C | oxygen. | |
| D | ozone. | |
| 3 Which sphere of the atmosphere is the thickest? | | |
| A | Mesosphere | |
| B | Troposphere | |
| C | Ionosphere | |
| D | Stratosphere | |
| 4 Which of Earth’s sphere is the outermost layer, which merges with space? | | |
| A | The lithosphere | |
| B | The mesosphere | |
| C | The stratosphere | |
| D | The exosphere | |

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| 5 Bacteria, found in the root nodules of legumes, are essential in the cycling of: | | | CT0502_07059-rm |
| A | water. | |
| B | nitrogen. | |
| C | oxygen. | |
| D | phosphorus. | |
| 6 Climate change is affecting people’s health. Which of the following statements is *incorrect*? | | | |
| A | Infection zones for diseases that thrive in warm, moist conditions are increasing. | | |
| B | Urban sprawl is impeding the growth of hospitals and health facilities. | | |
| C | Higher temperatures are increasing heat-related fatalities. | | |
| D | Stagnant weather conditions can trap warm air and smog, leading to respiratory problems. | | |
| 7 Which of the following is *not* a carbon sink? | | | |
| A | Rocks and other carbonates | | |
| B | Organic matter in the soil | | |
| C | Atmosphere | | |
| D | Oceans | | |
| 8 Which of the following devices is used to measure wind? | | CT0503_07059-r | |
| A | Anemometer |
| B | Thermometer |
| C | Barometer |
| D | Colorimeter |

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| 9 Wind is caused by differences in air pressure, mainly as a result of: | | |
| A | Earth’s rotation. | |
| B | the gravitational pull of the Moon. | |
| C | unequal heating of Earth’s surface. | |
| D | Earth’s magnetic field. | |
| 10 The most damaging effect of the permafrost melting would be: | | CT0504_04059-rm |
| A | having nowhere to ski anymore. |
| B | sea levels rising due to the extra water. |
| C | massive changes to the world’s tides. |
| D | the release of large amounts of carbon into the atmosphere. |

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|  | Section I total marks:  /10 marks |

Section II: Short-answer questions

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| 11 In the atmosphere, oxygen is formed through UV light converting water to oxygen and hydrogen. Name this process, labelled X on the diagram below, and write a chemical equation for this reaction. | |
| CT0505_07059-r | |
| X: | |
| Chemical equation: | |
|  | /3 marks |

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| 12 How do photosynthesis and respiration contribute to the oxygen cycle? | | |
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| 13 What is the difference between climate and weather? | | |
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|  | | /2 marks |
| 14 Name the Earth’s four major spheres. | | |
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|  | | /4 marks |
| 15 Explain why regions near the equator are warmer than regions near the poles. | | |
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| 16 Explain how a cyclone forms. | | |
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| 17 Phosphorus is no longer included in detergents to reduce eutrophication.  Explain how excess phosphorus from detergents contributed to increased eutrophication in waterways. | CT0506_04059-rm  Eutrophication in an irrigation channel | |
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| 18 Give two ways in which humans have contributed to the enhanced greenhouse effect. | |
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|  | /2 marks |
| 19 Identify the major process (A–D) that continually cycle water through the hydrosphere, atmosphere and biosphere. | |
| CT0507_07059 | |
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|  | /4 marks |
| 20 What is a carbon sink? Why are these so important? | |
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|  | /2 marks |
| 21 Explain the role of bacteria in the nitrogen cycle. | |
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|  | /2 marks |
| 22 Distinguish between the hydrosphere and the cryosphere. | |
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| 23 Give three negative effects of melting sea ice. | |
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|  | Section II total marks:  /33 marks |

Section III: Extended-response questions

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| 18 Using examples, describe how two different observations or measurements have been made by humans to provide evidence of enhanced global warming. | |
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| 20 There are many practices now being carried out to reduce global warming. Identify and describe ONE practice aimed at reducing global warming. Explain how your selected practice reduces global warming. | |
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|  | Section III total marks:  /7 marks |