



SUBJECT: **Environmental Science**
DATE: 16th May 2026
TIME: 9:00 a.m. to 12:05 p.m.

Answer **ALL** questions in Section A and any **TWO** questions from Section B.

Section A carries 80 marks and Section B carries 40 marks. You are advised to spend about two hours on Section A and one hour on Section B.

SECTION A: Answer ALL questions from this section.

1. State whether each of the following statements is **TRUE** or **FALSE** by ticking the appropriate box. Give **ONE** reason for your answer.

(a) There are three main types of rocks. ☐ True ☐ False

Reason: _____

_____ (2)

(b) Sedimentary rock is formed because of volcanic activity. ☐ True ☐ False

Reason: _____

_____ (2)

(c) Oceanic crust is significantly thicker and less dense than continental crust, primarily composed of light-coloured, silica-rich rocks like granite. ☐ True ☐ False

Reason: _____

_____ (2)

(d) The five layers of rock of the Maltese Islands are made up of stratified sedimentary rocks. ☐ True ☐ False

Reason: _____

_____ (2)

(e) The layers that make up the internal structure of the Earth from the centre outwards are: inner core, mantle, outer core and crust. ☐ True ☐ False

Reason: _____

_____ (2)

(Total: 10 marks)

Please turn the page.

2. (a) Distinguish between abiotic and biotic resources.

(4)

- (b) Complete the following account on sustainable harvesting by choosing the appropriate term from the following list. Each term may be used once or not at all.

resource**ecosystems****habitats****afforestation****substitution****generations****extraction****population****aquaculture**

Sustainable harvesting is a method of resource management that ensures the rate of _____ does not exceed the natural birth or growth rate of a _____. By treating living resources, such as fish stocks, timber, or medicinal plants as "natural capital" rather than a one-time commodity, humans allow _____ remain healthy and sustainably productive. The goal is to balance current human needs with the biological capacity of the environment, ensuring that these resources remain abundant and available for future _____ to use. Quotas and protected _____ (such as Marine Protected Areas) serve as the foundation by setting scientifically-determined catch limits and providing zones where species can reproduce without human interference. On land and in water, _____ and _____ act as vital supplements; the former restores ecosystems and provides sustainable timber, while the latter creates a controlled supply of seafood that reduces pressure on wild stocks. Finally, resource _____ shifts consumer demand away from vulnerable species to more abundant ones thus ensuring that no single species is pushed toward extinction.

(4)

- (c) Which United Nations plan adopted by all member countries in 2015, features 17 Sustainable Development Goals (SDGs)?

(1)

(Total: 9 marks)

3. (a) Explain how the enhanced greenhouse effect can occur.

(2)

- (b) (i) Give **TWO** examples of carbon sinks.

(1)

- (ii) Describe how carbon sinks can have a direct positive impact on global warming.

(2)

- (c) (i) Give **TWO** examples of carbon sources.

(1)

- (ii) Describe how carbon sources can have a direct negative impact on global warming.

(2)

(Total: 8 marks)

4. (a) Provide the chemical equations for the natural formation and destruction of ozone in the stratosphere.

(4)

- (b) Explain how chlorofluorocarbons (CFCs) disrupt the natural balance between ozone formation and destruction, including the key chemical reactions involved.

(4)

Question continues on the next page.

- (c) Describe **TWO** consequences of stratospheric ozone depletion on human health or the environment.

(4)

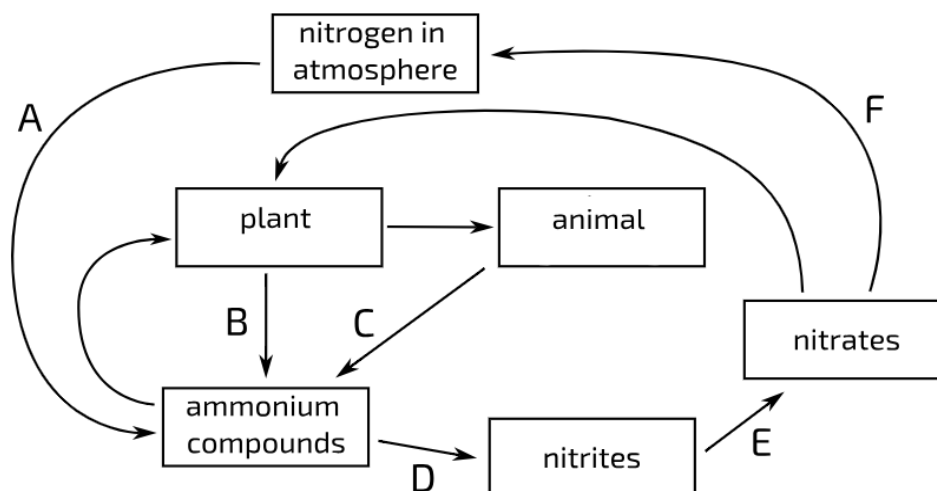
(Total: 12 marks)

5. Complete the following table by identifying the missing term or by describing the term indicated in the spaces provided.

	Term	Description
(a)	Albedo	(2)
(b)		The process by which plants lose water through their leaves, adding moisture to the atmosphere. (1)
(c)		A technology that increases potable water supplies by forcing seawater through a semi-permeable membrane at high pressure to remove dissolved salts. (1)
(d)	Bioaccumulation	(2)
(e)	Catalytic Converter	(2)
(f)		The downward movement of water through soil and rock layers until it reaches an underground aquifer. (1)
(g)		A harmful substance released directly into the air from a source. (1)
(h)	Secondary Pollutant	(2)
(i)	Aquiclude	(2)
(j)		The process by which water on the ground surface enters the soil layers. (1)

(Total: 15 marks)

6. The diagram below represents the nitrogen cycle.



Adapted from: https://isaacscience.org/questions/nitrogen_cycle_processes

(a) In the diagram above, the letters represent processes. Identify which letters represent the processes below:

- (i) Decay: _____
- (ii) Nitrification: _____
- (iii) Nitrogen-fixation: _____
- (iv) Denitrification: _____ (4)

(b) Name **ONE** biological molecule present in animals that contains nitrogen.

_____ (1)

(c) Describe how the following human activities can upset the natural balance of the nitrogen cycle:

(i) artificial fertilisers: _____

_____ (3)

(ii) burning of fossil fuels: _____

_____ (3)

Question continues on the next page.

- (d) There are bacteria that live in plant roots, where they convert nitrogen gas into nitrates that the plant can use. The plant, in turn, provides the bacteria with nutrients and a protected environment.

Name and describe the association between these bacteria and the host plant.

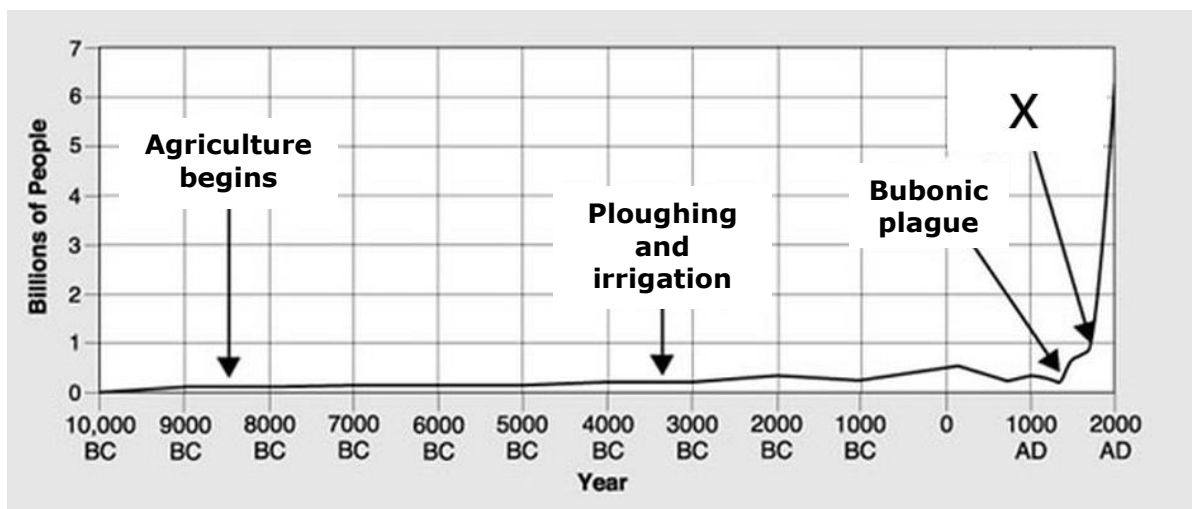
(3)

(Total: 14 marks)

7. (a) Define the term population.

(2)

- (b) The graph below shows how the human population size changed over time.



Adapted from: <https://schsbio.weebly.com/lesson-34.html>

- (i) Name the population period marked on the graph as 'Agriculture begins'.

(1)

- (ii) Name the human population period marked as X in the graph above.

(1)

- (iii) Describe the trend in global human population growth following the period indicated with an X.

(4)

- (c) Another way of representing human population change is through a demographic transition model. Explain how this model shows changes in population over time.

(4)

(Total: 12 marks)

SECTION B: Answer any TWO questions from this section.

Write your answers in the space provided in this booklet. If you need more space to continue your answers you may request another booklet from your invigilator.

1. (a) Distinguish between the three main types of soil. (6)
- (b) Which type of soil is typically the best for most plants? Give **TWO** reasons. (4)
- (c) Describe **TWO** processes which bring about soil erosion. (4)
- (d) Why are pesticides used in agriculture? Give **ONE** example of a pesticide and state its specific use. (3)
- (e) Define the term GMO and explain how GMOs can be controversial. (3)

(Total: 20 marks)

2. (a) (i) Describe the processes of nuclear fission and nuclear fusion and explain how each releases energy. (4)
- (ii) Describe the main risks and benefits of switching from fossil fuels to nuclear power. (4)
- (b) *As countries move away from fossil fuels, shifting to a mix of renewable energy brings both opportunities and environmental challenges.*
Consider the statement above and answer the following questions:
 - (i) Distinguish between passive and active methods of harvesting solar energy, giving **ONE** example of each. (4)
 - (ii) Evaluate wind farms as a renewable energy source by outlining **ONE** advantage and **ONE** limitation. (4)
 - (iii) Describe the specific environmental impacts of damming a river for hydroelectric power. (4)

(Total: 20 marks)

3. (a) Explain how carbon dioxide in the atmosphere contributes to the natural acidity of rainwater. Include the relevant chemical equation. (4)
- (b) Explain how sulfur dioxide and nitrogen dioxide released from human activities lead to the formation of strong acids in the atmosphere. In your answer, write the chemical reactions that produce sulfuric acid and nitric acid. (6)
- (c) Discuss how the acidification of water bodies disrupts aquatic ecosystems. In your answer, explain the relationship between low pH and the solubility of toxic metal ions. (8)
- (d) Explain **ONE** strategy that can be used to reduce the effects of acidification of water bodies. (2)

(Total: 20 marks)***Please turn the page.***

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4. (a) Identify **THREE** major sources of sewage and describe **FOUR** common constituents found in untreated sewage. (7)
- (b) Outline the **FOUR** main stages of sewage treatment, explaining the purpose of each stage. (9)
- (c) (i) Distinguish between first-class and second-class reclaimed water.
- (ii) State **TWO** ways in which residual sludge from sewage treatment can be used. (4)

(Total: 20 marks)

5. Read the following passage and then answer the questions that follow:

In Maltese freshwater habitats like Chadwick lakes, snails and insects are usually preyed on by frogs, including the painted frog, which is the only indigenous freshwater frog in Malta. However, when still young, in their tadpole stage, they are herbivorous, feeding on aquatic vegetation. Over the years, the red swamp crayfish, an invasive alien species, has been observed thriving in Chadwick lakes, threatening the painted frog due to preying on the same fauna and more. Its population is blooming as it has very few predators locally, such as ducks.

- (a) Distinguish between indigenous and alien species. (2)
- (b) The red swamp crayfish and the painted frog both rely on similar resources in the same habitat. Name and describe the interaction exhibited between them. (3)
- (c) Construct a food web from the information given in the passage above. (7)
- (d) Name the primary chemical process that introduces energy into this food web, and write the chemical equation that summarises this process. (4)
- (e) Predict and explain how removing the alien species would affect the populations of the other organisms in the food web. (4)

(Total: 20 marks)

6. (a) Distinguish between species diversity, habitat diversity and genetic diversity. (3)
- (b) Describe how each of the following human activities leads to loss of biodiversity:
- (i) climate change; (4)
- (ii) fish farming; (4)
- (iii) intensive agricultural practices. (4)
- (c) Mention **THREE** reasons why conservation biology is important. (3)
- (d) Mention **ONE** local and **ONE** international stakeholder in the conservation of biodiversity. (2)

(Total: 20 marks)

[illegible]

[illegible]

[illegible]

[illegible]