CLASS 8 · SCIENCE

Our Home: Earth, a Unique Life Sustaining Planet

Sample paper · 15 questions · 22 marks

10 objective questions × 1 mark. Five written-response questions: 12 marks. Write your working where needed. Suggested time: 45 minutes. Answers and marking guidance follow the questions.

Original Evater practice material aligned with these school topics. Not an official NCERT paper or marking scheme. No automatic grading is implied.

Section A · Objective questions (10 marks)

1. Two imaginary worlds have the same distance from their star, but one has no substantial atmosphere. Which conclusion is sound?

A. The airless world must have breathable air

B. Atmosphere also affects temperature and surface water conditions

C. Distance alone guarantees identical surface conditions

D. Both worlds must have identical living organisms

2. Earth's magnetic field helps protect life by:

A. making the sky blue

B. deflecting many harmful charged particles coming from the Sun

C. creating gravity

D. keeping the oceans warm

3. A field survey lists rock types, soil types, bird species and plant species. Which pair belongs in its geodiversity record?

A. Rock types and soil types

B. Plant species and soil types only

C. Bird species and rock types only

D. Bird species and plant species

4. If Earth had no atmosphere, its surface temperature would most likely:

A. swing between very hot days and very cold nights

B. become uniformly cold everywhere

C. stay perfectly comfortable

D. remain unchanged

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5. Which gas do green plants take in for photosynthesis?

A. Hydrogen

B. Carbon dioxide

C. Nitrogen

D. Oxygen

6. Liquid water can exist steadily on Earth's surface mainly because:

A. Earth spins very fast

B. Earth is the largest planet

C. the Moon pulls the water into place

D. Earth's distance from the Sun and its atmosphere keep temperatures in a suitable range

7. The Moon has almost no atmosphere even though it is rocky like Earth. The main reason is:

A. Its weaker gravity makes it easier for gases to escape

B. it spins too fast

C. its craters absorb the gases

D. it is too close to the Sun

8. Biodiversity refers to:

A. the strength of winds

B. the depth of the oceans

C. the variety of living organisms in a region

D. the number of rocks in a region

9. Cutting down a large forest patch for roads is most likely to cause:

A. loss of habitats and reduced local biodiversity

B. an immediate rise in groundwater

C. no change at all

D. more rainfall and a cooler local climate

10. Which of these is an example of vegetative propagation?

A. A tadpole hatching from frog eggs

B. A mustard plant growing from a seed

C. A new potato plant sprouting from a potato piece with an 'eye'

D. A chick hatching from an egg

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Section B · Written responses (12 marks)

Attempt all five. Use a separate sheet if you need more space. The marks for each question are shown.

11. A poster says: a planet at the right distance from its star must support humans outdoors. Give two reasons that the distance alone cannot justify this conclusion. [2 marks]

12. Sort these roles between the atmosphere and the magnetic field: supplying oxygen for human respiration, and deflecting many charged particles from the Sun. Why should the two protective systems not be treated as identical? [2 marks]

13. A nursery grows one set of plants from stem cuttings and another set from seeds formed by pollination and fertilisation. Which method is vegetative propagation? Which involves sexual reproduction? Give one reason for each. [2 marks]

14. An Earth-system chart shows plants releasing water vapour, clouds forming, and rain soaking into soil. Name the living, air, water and solid-Earth systems involved, then explain one link between them. [3 marks]

15. A city plan protects an existing wetland, reduces burning of fossil fuels and prevents untreated sewage entering streams. Match each action to one of these problems: biodiversity loss, climate change and pollution. Explain one connection between any two problems. [3 marks]

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Answers & marking guidance

Use these after attempting the paper. Accept equivalent correct reasoning and sensible units. These are Evater model answers, not an official marking scheme.

Section A · 1 mark each

1. B — Distance from a star is only one condition: atmospheric composition and pressure also matter.

2. B — The magnetic field deflects much of the solar wind, shielding the atmosphere and living things.

3. A — Geodiversity concerns non-living natural variety; birds and plants are biodiversity.

4. A — The atmosphere traps and distributes heat; without it, temperatures would swing to extremes like on the Moon.

5. B — Plants use carbon dioxide, water and sunlight to make food, releasing oxygen.

6. D — Earth's distance from the Sun, combined with its atmosphere and pressure, keeps much of its water liquid.

7. A — The Moon has much less mass than Earth. Its low escape speed and exposure to the solar wind make retaining a thick long-lived atmosphere difficult.

8. C — Biodiversity is the variety of life - different species, their genes and the ecosystems they form.

9. A — Removing forest destroys habitats, reduces biodiversity and can warm and dry the local climate.

10. C — Vegetative propagation is new plants growing from plant parts such as stems, roots or leaves - a potato tuber piece, for instance.

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Section B · Model answers

11. The planet might lack breathable air at suitable pressure. It might also lack accessible liquid water or suitable temperature regulation; distance alone does not determine its atmosphere, pressure or water. Radiation shielding or other clearly explained life-support needs are also acceptable.

Marking: 1 mark for each of two distinct explained conditions beyond distance.

12. Oxygen is supplied by the atmosphere. The magnetic field deflects many solar charged particles. Air is matter surrounding Earth, whereas a magnetic field is not breathable matter; they have different functions even though both help protect the planet.

Marking: 1 mark for correctly assigning both roles; 1 mark for a clear distinction between the two systems.

13. The stem-cutting method is vegetative propagation because a new plant grows from a vegetative part of the parent. Seeds formed after fertilisation involve sexual reproduction because male and female reproductive cells fuse.

Marking: 1 mark for cutting/vegetative with reason; 1 mark for fertilised-seed/sexual with reason.

14. Plants belong to the biosphere; air to the atmosphere; water in rain, soil moisture and vapour participates in the hydrosphere; soil and rock belong to the geosphere. For example, plants move water from soil into the atmosphere by transpiration, and rainfall returns water to the ground.

Marking: 1 mark for biosphere and atmosphere correctly identified; 1 mark for hydrosphere and geosphere correctly identified; 1 mark for a valid explained link.

15. Wetland protection helps limit biodiversity loss. Reducing fossil-fuel burning helps limit greenhouse-gas emissions and climate change. Sewage treatment reduces water pollution. Connections include polluted water harming species, or climate change altering habitats and biodiversity. One action can benefit more than one problem.

Marking: 1 mark for the three main matches; 1 mark for one scientifically valid connection; 1 mark for explaining how that connection affects living things or their habitat.

Topic references

NCERT Class 8 Science, Curiosity, Chapter 13: Our Home: Earth, a Unique Life Sustaining Planet.

https://ncert.nic.in/textbook/pdf/hecu113.pdf

Concept reference only. Questions and model answers are original Evater practice material, not an official NCERT paper.

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