CBSE CLASS X

Science (086)

QUESTION PAPER

AI-generated question paper

Code: OAZJNT **Questions: 32** **Maximum Marks: 69** **Generated: 2026-06-25 17:25**

SELECTIONS USED

Subject	Science
Lessons	13 Our Environment
Level of understanding	Exam-ready
Question selection	CBSE board paper, whole lesson (~80 marks across Sections A-E)
Model	claude-sonnet-4-6

Composition — Difficulty: 12 straightforward · 16 medium · 4 deep | Types: 13 MCQ · 6 Short · 4 Very short · 3 Assertion–reason · 3 Long · 3 Case-based | Sections: A 16Q/16m · B 4Q/8m · C 6Q/18m · D 3Q/15m · E 3Q/12m

Q1. straightforward exam-ready **[1]**

Which of the following correctly describes an ecosystem?
(A) Only the living organisms in a habitat
(B) All interacting organisms in an area together with the non-living constituents of the environment
(C) Only the physical factors like temperature, rainfall and soil
(D) The food chains present in a forest

A Only the living organisms in a habitat
B All interacting organisms in an area together with the non-living constituents of the environment
C Only the physical factors like temperature, rainfall and soil
D The food chains present in a forest

◆ Our Environment

Q2. straightforward exam-ready **[1]**

Which of the following is an example of a human-made (artificial) ecosystem?
(A) Forest
(B) Pond
(C) Lake
(D) Crop-field

A Forest
B Pond
C Lake
D Crop-field

◆ Our Environment

Q3. straightforward exam-ready **[1]**

Approximately what percentage of the food eaten by an organism at one trophic level becomes available as body mass for the next trophic level?

(A) 1%
(B) 10%
(C) 50%
(D) 100%

A 1%
B 10%
C 50%
D 100%

◆ Our Environment

Q4. straightforward exam-ready **[1]**

Which of the following food chains is correctly ordered?

(A) Goat → Grass → Human
(B) Grass → Goat → Human
(C) Human → Goat → Grass
(D) Grass → Human → Goat

A Goat → Grass → Human
B Grass → Goat → Human
C Human → Goat → Grass
D Grass → Human → Goat

◆ Our Environment

Q5. straightforward exam-ready **[1]**

The progressive accumulation of non-degradable chemicals at each successive trophic level is called:

(A) Biodegradation
(B) Biological magnification
(C) Eutrophication
(D) Decomposition

A Biodegradation
B Biological magnification
C Eutrophication
D Decomposition

◆ Our Environment

Q6. medium exam-ready **[1]**

In which group do ALL items belong to non-biodegradable waste?

(A) Vegetable peels, plastic bags, glass
(B) Plastic bags, CFCs, glass bottles
(C) Paper cups, cotton cloth, fruit peels
(D) Wood, grass, leather

A Vegetable peels, plastic bags, glass
B Plastic bags, CFCs, glass bottles
C Paper cups, cotton cloth, fruit peels
D Wood, grass, leather

◆ Our Environment

Q7. straightforward exam-ready **[1]**

The ozone layer protects life on Earth mainly by:
(A) Providing oxygen for respiration
(B) Shielding the Earth's surface from ultraviolet radiation
(C) Absorbing infrared radiation from the Sun
(D) Filtering out visible light

A Providing oxygen for respiration
B Shielding the Earth's surface from ultraviolet radiation
C Absorbing infrared radiation from the Sun
D Filtering out visible light

◆ Our Environment

Q8. straightforward exam-ready **[1]**

Which class of synthetic chemicals is primarily responsible for the depletion of the ozone layer?
(A) DDT
(B) Chlorofluorocarbons (CFCs)
(C) Carbon dioxide
(D) Sulphur dioxide

A DDT
B Chlorofluorocarbons (CFCs)
C Carbon dioxide
D Sulphur dioxide

◆ Our Environment

Q9. straightforward exam-ready **[1]**

Green plants in a terrestrial ecosystem capture approximately what percentage of the sunlight energy that falls on their leaves and convert it into food energy?
(A) 10%
(B) 5%
(C) 1%
(D) 0.1%

A 10%
B 5%
C 1%
D 0.1%

◆ Our Environment

Q10. medium exam-ready **[1]**

Which of the following best describes the flow of energy in an ecosystem?
(A) Cyclic — energy keeps returning to each trophic level
(B) Unidirectional — energy flows from autotrophs to consumers and is not reversed
(C) Bidirectional — energy flows both ways between producers and consumers
(D) Random — energy flows in no particular direction

A Cyclic — energy keeps returning to each trophic level
B Unidirectional — energy flows from autotrophs to consumers and is not reversed
C Bidirectional — energy flows both ways between producers and consumers
D Random — energy flows in no particular direction

◆ Our Environment

Q11. straightforward exam-ready **[1]**

[mcq] Which of the following contains ONLY biodegradable items?
(A) Grass, flowers and leather
(B) Grass, wood and plastic
(C) Fruit peels, paper and cotton cloth
(D) Plastic bags, glass and DDT

A Grass, flowers and leather
B Grass, wood and plastic
C Fruit peels, cake and lime juice
D Plastic bags, glass and DDT

◆ Our Environment

Q12. straightforward exam-ready **[1]**

When a series of branching food chains interconnect rather than forming a single straight line, the resulting network is called a:
(A) Trophic pyramid
(B) Food web
(C) Energy chain
(D) Decomposition chain

A Trophic pyramid
B Food web
C Energy chain
D Decomposition chain

◆ Our Environment

Q13. medium exam-ready **[1]**

Improvements in lifestyle leading to increased use of disposable, non-biodegradable packaging has caused which of the following problems?
(A) Faster nutrient cycling in soils
(B) Greater accumulation of persistent waste in the environment
(C) Increased rate of photosynthesis by producers
(D) Improved soil fertility

A Faster nutrient cycling in soils
B Greater accumulation of persistent waste in the environment
C Increased rate of photosynthesis by producers
D Improved soil fertility

◆ Our Environment

Q14. medium exam-ready **[1]**

[assertion_reason] Assertion (A): Among all organisms in a food chain, the highest concentration of pesticides is found in organisms at the highest trophic level.
Reason (R): Non-degradable pesticides get accumulated progressively at each trophic level through biological magnification, so organisms at higher trophic levels accumulate greater concentrations.

Options:
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

A Both A and R are true and R is the correct explanation of A.
B Both A and R are true but R is not the correct explanation of A.
C A is true but R is false.
D A is false but R is true.

◆ Our Environment

Q15. medium exam-ready **[1]**

Assertion (A): Food chains in nature are generally limited to three or four trophic levels.
Reason (R): A large amount of energy is lost as heat at each trophic level, leaving very little usable energy for organisms beyond the fourth level.

Options:
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

A Both A and R are true and R is the correct explanation of A.
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◆ Our Environment

Q16. deep exam-ready **[1]**

Assertion (A): Ozone (O_3) found at higher levels of the atmosphere is beneficial, while at ground level it is a poison.
Reason (R): At higher altitudes, ozone shields living organisms from harmful UV radiation; at ground level it is toxic to aerobic life.

Options:
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

A Both A and R are true and R is the correct explanation of A.
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C A is true but R is false.
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◆ Our Environment

Q17. straightforward exam-ready **[2]**

Define 'biodegradable substances'. Give one example each of a biodegradable and a non-biodegradable waste commonly generated at home.

◆ Our Environment

Q18. medium exam-ready **[2]**

What are decomposers? Explain why an ecosystem cannot function normally in their absence.

◆ Our Environment

Q19. medium exam-ready **[2]**

Pesticides sprayed on crops are not directly eaten by humans, yet they are detected in our food. Explain the pathway through which these chemicals ultimately reach our bodies.

◆ Our Environment

Q20. medium exam-ready **[2]**

Distinguish between a food chain and a food web, giving one example of each.

◆ Our Environment

Q21. straightforward exam-ready **[3]**

[short_answer] What are trophic levels? Using the food chain — Grass → Grasshopper → Frog → Snake → Eagle — identify the trophic level of each organism. Which organism would have the least available energy, and why?

◆ Our Environment

Q22. medium exam-ready **[3]**

Explain why the number of individuals at successive trophic levels in an ecosystem keeps decreasing. In a food chain with four trophic levels, if producers have 10,000 units of energy, how much energy is available at the fourth trophic level? Show your working.

◆ Our Environment

Q23. medium exam-ready **[3]**

What is biological magnification? Using a food chain as an example, explain why a carnivore at the top of the food chain would have a higher concentration of pesticides in its body than a herbivore feeding on the same plants.

◆ Our Environment

Q24. medium exam-ready **[3]**

[short_answer] Explain how ozone is formed naturally in the upper atmosphere. Name the group of chemicals mainly responsible for the depletion of the ozone layer, and state two harmful consequences of ozone layer depletion.

◆ Our Environment

Q25. medium exam-ready **[3]**

Suggest three environment-friendly practices that can help an individual reduce the amount of non-biodegradable waste generated in daily life. Justify why each practice is effective.

◆ Our Environment

Q26. deep exam-ready **[3]**

If all the organisms at one trophic level of an ecosystem are suddenly removed, what would be the consequences for (i) the trophic level immediately above it, and (ii) the trophic level immediately below it? Give a specific example to support your answer.

◆ Our Environment

Q27. medium exam-ready **[5]**

[long_answer] (a) Define 'ecosystem'. Distinguish between biotic and abiotic components, giving two examples of each.
(b) Explain the roles of producers, consumers and decomposers in maintaining the balance of an ecosystem.
(c) Why are green plants called the primary source of energy in any ecosystem? What would happen if all producers were removed from an ecosystem?

◆ Our Environment

Q28. medium exam-ready **[5]**

(a) What is the ozone layer and where is it found in the atmosphere?
(b) Describe how UV radiation leads to the formation of ozone in the upper atmosphere, with the help of chemical equations.
(c) Explain how human activities have led to the depletion of the ozone layer, and discuss the environmental consequences of this depletion.
(d) What international measures have been taken to address this problem?

◆ Our Environment

Q29. deep exam-ready **[5]**

(a) Distinguish between biodegradable and non-biodegradable substances with two examples each.
(b) How do non-biodegradable substances cause environmental problems? Discuss two specific ways.
(c) Even if all waste were biodegradable, could it still harm the environment? Explain your reasoning.
(d) Suggest two practical steps that local municipal bodies can take to manage biodegradable and non-biodegradable wastes effectively.

◆ Our Environment

Q30. medium exam-ready **[4]**

Read the following passage and answer the questions that follow:

A farmer applied large quantities of pesticides to his paddy fields over several seasons to improve yield. After heavy rains, the water carrying dissolved pesticides drained into a nearby pond. The pond supported a food chain: Algae → Small fish → Large fish → Fish-eating birds. After a few years, scientists noticed that the fish-eating birds in the area were dying in large numbers. Chemical analysis showed that these birds had very high levels of pesticides in their bodies, even though the concentration of pesticides in the pond water itself was very low.

(i) Name the phenomenon responsible for the high pesticide concentration in the fish-eating birds. [1]
(ii) Arrange the four organisms — Algae, Small fish, Large fish, Fish-eating birds — in increasing order of pesticide concentration in their bodies. [1]
(iii) Explain why the concentration of pesticides is highest in the fish-eating birds even though the water contains only a very small amount of the chemical. [2]

◆ Our Environment

Q31. medium exam-ready **[4]**

Read the following and answer the questions that follow:

A class was asked to bury two sets of waste materials in the school garden: Set A contained vegetable peels, leftover food and dried leaves; Set B contained plastic wrappers, an old polythene bag and an empty medicine strip. After 30 days, they dug up both sets. Set A had largely decomposed and was mixed into the soil, while Set B remained almost unchanged.

(i) What term describes the materials in Set A? What organisms are mainly responsible for their breakdown? [1]
(ii) Give a reason why the materials in Set B remained unchanged after 30 days. [1]
(iii) Describe two harmful effects that materials like those in Set B can have on the environment if left unmanaged. [2]

◆ Our Environment

Q32. deep exam-ready **[4]**

Read the following and answer the questions that follow:

In a grassland ecosystem, the following food chain exists:
Grass → Rabbit → Fox → Lion

Assume that the grass (producers) fixes 1,00,000 units of energy from sunlight. A wildlife biologist observing this ecosystem notes that at higher trophic levels, there are far fewer individual organisms. He also notes that when a disease wiped out most of the fox population one year, rabbit numbers exploded and the grass was severely overgrazed.

(i) Using the 10% law, calculate the amount of energy available to the lion (4th trophic level). Show your calculation. [2]
(ii) Why are there far fewer individual lions than rabbits in this ecosystem? [1]
(iii) Based on the biologist's observation about foxes, explain what this tells us about the interdependence of organisms in a food chain. [1]

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