

**International Green Warrior Olympiad (IGWO)****Sample Paper****Pattern and Marking Scheme**

Grade	Topic/Section	No. of Questions	Marks per Question	Total Marks
Grade 6	Green Champ	40	1	40
	Green Challenger	10	2	20
Grand Total		50		60

Syllabus

Clean Water and Sanitation, Affordable and Clean Energy, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water, Life on Land, Zero Hunger

For more details, visit <https://www.crestolympiads.com/green-olympiad-gwo>.

Green Champ (Each Question is 1 Mark)

1. A local community organises a recycling event. They provide separate collection bins for paper, plastic, glass, and electronic waste. Which of the following actions is appropriate at the event?
 - a. Throwing all items in the same bin.
 - b. Separating and placing each type of recyclable in its designated bin.
 - c. Mixing paper, plastic, glass, and electronic waste in one container.
 - d. Ignoring the event and leaving recyclables at home.
2. In an experiment, researchers compare the environmental impact of two vegetable farming methods. Which data would be most relevant to assess their sustainability?
 - a. The total weight of vegetables produced by both methods.
 - b. The amount of synthetic pesticides used in each method.
 - c. The biodiversity of insects and animals observed in the fields.
 - d. The carbon footprint and water usage associated with each farming method.
3. A group of students conducted an experiment to understand the greenhouse effect and its implications. What conclusion did they likely draw about the greenhouse effect?
 - a. The greenhouse effect has no impact on Earth's temperature regulation.
 - b. Greenhouse gases trap heat, contributing to warming the Earth's surface.
 - c. Greenhouse gases prevent sunlight from reaching Earth, causing cooling.
 - d. The greenhouse effect only affects certain regions but not the entire planet.
4. Lucas decided to explore the forest and uncover its mysteries. Amidst his exploration, Lucas met an elder from his village who shared wisdom about the forest's significance. What role does the forest play in soil erosion?
 - a. The forest has no impact on soil erosion or land stability.
 - b. It contributes to soil erosion by retaining excess water.
 - c. It acts as a shield against soil erosion and maintains land stability.
 - d. It promotes landslides due to dense vegetation.
5. Renewable energy sources, such as solar and wind power, contribute to sustainable development by reducing reliance on finite resources. Which choice supports this statement?
 - a. Renewable energy sources have a higher environmental impact than fossil fuels.
 - b. Renewable energy sources are insufficient to meet energy demands.
 - c. Renewable energy sources depend solely on non-renewable resources.
 - d. Renewable energy sources offer alternatives to finite resources for long-term sustainability.
6. An individual aims to make more environmentally conscious choices in their daily consumption. What habit should they adopt to support this goal?
 - a. Regularly discarding and replacing electronic devices
 - b. Prioritising products with excessive packaging for better protection
 - c. Opting for products made from recycled or sustainable materials
 - d. Buying single-use plastic items in large quantities for convenience

7. Emily is shopping for new household appliances to make her home more energy-efficient. As she evaluates different options, she wants to understand the concept of energy efficiency to make informed choices.

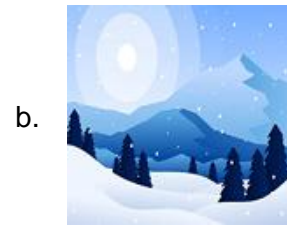
Which of the following best describes the concept of energy efficiency in household appliances?

- a. The maximum power output an appliance can achieve.
 - b. The ratio of useful energy output to the total energy input.
 - c. The total energy consumption of an appliance regardless of its output.
 - d. The efficiency of an appliance in generating renewable energy.
8. Phoebe and her friends are discussing the environmental consequences of inadequate wastewater treatment in their town located by the sea. Which type of marine pollution is predominantly contributed by coastal cities with insufficient wastewater treatment facilities?
- a. Thermal pollution
 - b. Noise pollution
 - c. Radioactive pollution
 - d. Organic pollution
9. In a study, it was observed that regions with more forests experience higher rates of precipitation. What could be the explanation for this phenomenon?
- a. Trees release water vapour through transpiration, contributing to cloud formation.
 - b. Forests absorb all the rainfall, preventing it from reaching the ground.
 - c. Trees block sunlight, causing water to evaporate more slowly.
 - d. Forests do not affect precipitation rates.
10. In a study comparing two communities—one using well water and the other using water from a river—it was found that the community using river water had a higher incidence of waterborne diseases. What conclusion can be drawn from this data?
- a. Well water is naturally purified and free from contaminants.
 - b. The community using river water might have inadequate water treatment measures.
 - c. Waterborne diseases are not affected by the source of water.
 - d. The study's results are inconclusive and do not allow for any conclusions to be drawn.
11. A city is experiencing a heat wave, and the local power plant is struggling to keep up with the increased demand for electricity. The power plant is considering burning more fossil fuels to generate more electricity. However, the burning of fossil fuels releases carbon dioxide into the atmosphere, which contributes to climate change. What is the best course of action for the power plant to take?
- a. Burn more fossil fuels to meet the increased demand
 - b. Implement temporary energy conservation measures to reduce demand
 - c. Combat carbon emissions by planting trees and funding environmental projects
 - d. Invest in renewable energy sources to meet the power need

12. Emily is studying different ecosystems in her science class. She learns about various habitats and their diversity of species. Among these ecosystems, which one is likely to harbor the most diverse range of species?



Desert



Tundra



Grassland



Rainforest

13. In a city, students were curious about where the power for their home, gadgets and appliances came from. They learned about different forms of energy and how they impact daily life.

Which sources of energy were explored by the students?

- a. Solar energy
b. Wind energy
c. Fossil fuels
d. All of the above

14. Your closet is overflowing with clothes you rarely wear. How can you reuse these items instead of throwing them away?

1. Donate them to charity for someone else to enjoy.
2. Upcycle them into new creations like tote bags or pillowcases.
3. Host a clothing swap with friends to exchange unwanted items.

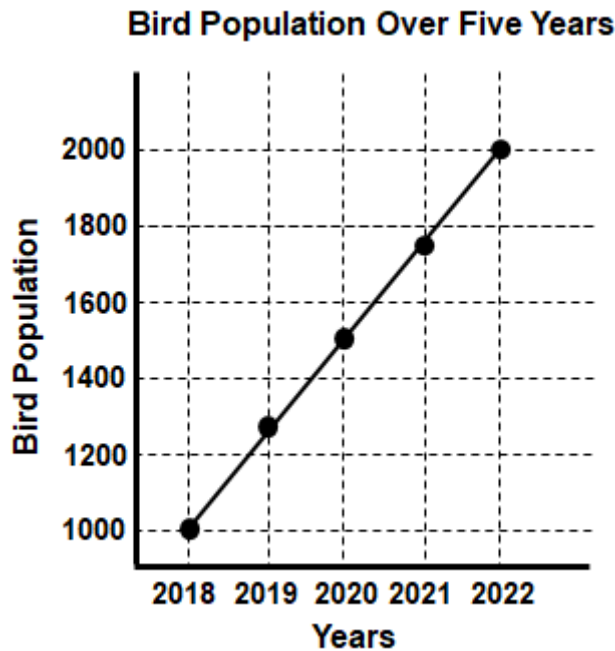


- a. Only 1
b. Only 2
c. Only 2 and 3
d. 1, 2 and 3

15. Alex is comparing two irrigation systems for his garden. System A uses drip irrigation, and System B uses sprinklers. How does System A align better with responsible water consumption?

- a. System A is more visually appealing than System B.
- b. System A requires more water for the same coverage.
- c. System A distributes water evenly, minimising wastage.
- d. System A operates faster, saving time.

16. The team found that the absence of natural vegetation had disrupted the local hydrological cycle, leading to water scarcity in the region. What would be the most effective strategy to restore the hydrological balance in this area?
- Introducing more non-native plant species.
 - Constructing more dams to manage water flow.
 - Restoring native vegetation to improve water retention.
 - Encouraging excessive irrigation to boost plant growth.
17. A conservation organisation monitored the population growth of a critically endangered bird species over five years. The graph below illustrates the findings:
Based on the graph, what can be inferred about the conservation efforts for this bird species?

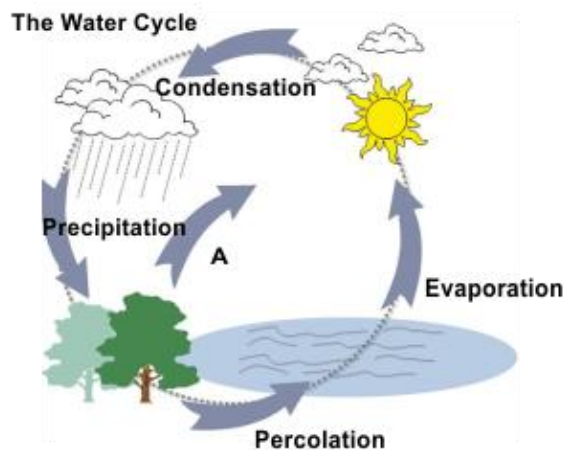


- The efforts have been ineffective.
 - The population decline continues.
 - There has been a successful increase in the bird population.
 - The population has remained stable.
18. The students are examining nuclear energy and its environmental implications. Considering their long-term impact and safety hazards, what constitutes the primary environmental concern linked to nuclear power plants?
- Dissemination of greenhouse gases leading to climate alteration.
 - Discharge of particulate matter resulting in regional air pollution.
 - Accumulation of radioactive waste and the potential for accidents.
 - Contribution to soil degradation and ecosystem destabilisation.
19. Mia is analysing a research paper on carbon cycle disruption. How does the burning of fossil fuels specifically contribute to upsetting the carbon balance?
- By increasing oxygen levels in the atmosphere.
 - By releasing stored carbon dioxide into the air.
 - By enhancing carbon sequestration in soil.
 - By decreasing the overall carbon emission.

20. While exploring climate change's impact on ocean health, a group of students identified a process significantly contributing to ocean acidification. What aspect of climate change primarily leads to the acidification of the ocean, affecting marine organisms?
- Decreased levels of greenhouse gases in the atmosphere.
 - Elevated ocean temperatures foster favourable conditions for marine life.
 - Increased carbon dioxide absorption by the oceans, altering their pH levels.
 - Reduced water pollution due to stricter environmental regulations.
21. Noah is exploring the impact of nutrient pollution on marine ecosystems. How does nutrient pollution, such as excess nitrogen and phosphorus, primarily affect marine habitats?
- Enhancing biodiversity by promoting the growth of various marine species.
 - Decreasing oxygen levels and causing harmful algal blooms.
 - Balancing pH levels in affected marine environments.
 - Strengthening the resilience of marine food webs.
22. Max loves animals and often visits a nearby park to watch them. He noticed that the park was being divided by roads and buildings, making it harder for animals to move around freely. What is this breaking up of habitats called?
- Habitat preservation
 - Habitat enrichment
 - Habitat fragmentation
 - Habitat expansion
23. Sofia is exploring the impact of food transportation on greenhouse gas emissions. Which food choice generally requires the least transportation and thereby has a lower carbon footprint?
- Exotic fruits imported from distant countries.
 - Seasonal vegetables from a nearby farm.
 - Packaged frozen foods from international markets.
 - Canned goods transported via air freight.
24. David is considering the environmental impact of his food choices. Which practice is most detrimental to sustainability in food consumption?
- Opting for reusable containers for storing leftovers.
 - Consuming excessive amounts of processed foods.
 - Supporting local farmers by buying their produce.
 - Throwing away edible food due to cosmetic imperfections.
25. Farmer Tom is facing decreased crop yields due to erratic rainfall patterns caused by climate change. Which adaptive strategy would be most effective for him to combat this issue?
- Implementing traditional farming techniques
 - Developing genetically modified drought-resistant crops
 - Using chemical fertilisers to enhance soil fertility
 - Abandoning agriculture and seeking a different profession
26. Sarah is researching eco-friendly transportation options for her science project. She wants to choose a clean energy alternative that minimises environmental impact. She comes across a technology known as hydrogen fuel cells. Considering her criteria, why might hydrogen fuel cells be an appealing choice for Sarah?
- They are more affordable compared to traditional gasoline engines, reducing costs.
 - They release only water vapour as the byproduct, ensuring zero emissions.
 - They offer longer driving ranges due to their superior energy density.

- d. They seamlessly integrate with the existing infrastructure for gasoline-powered vehicles.
- 27.** Mark and Sarah are discussing ways to conserve water at home. Mark argues that taking shorter showers helps save water, while Sarah believes that using a dishwasher consumes less water than hand washing dishes.
In the context of water conservation at home, which statement aligns more with effective water-saving practices based on Mark and Sarah's discussion?
- Mark's shorter showers significantly conserve more water than Sarah's dishwasher usage.
 - Sarah's claim of a dishwasher using less water compared to hand washing dishes is more water-efficient.
 - Both Mark and Sarah's approaches contribute equally to water conservation efforts.
 - Neither Mark's shorter showers nor Sarah's dishwasher usage significantly impact water conservation.
- 28.** Alex, an aspiring marine conservationist, embarked on a mission to address the threats to coral reefs. He studied the factors causing coral bleaching and sought effective solutions. While researching coral bleaching, Alex found a strategy that could directly aid in protecting coral reefs.
What approach would be most beneficial for addressing this issue?
- Regulating whaling activities in the vicinity of coral reefs.
 - Studying and protecting endangered species in the area.
 - Reducing ocean acidification through global policy changes.
 - Establishing marine protected areas around coral reef habitats.
- 29.** A family composts their food waste regularly. Which environmental benefit is directly linked to this practice?
- Increased greenhouse gas emissions.
 - Amplified need for chemical fertilisers
 - Enhanced soil fertility and moisture retention.
 - Diminished biodiversity in the area.
- 30.** Lisa, during her school trip, visited the local water treatment plant. She observed a fascinating process called desalination.
In which of the following situations would desalination likely be most beneficial?
- A community located near a freshwater river.
 - A region with heavy rainfall throughout the year.
 - An island surrounded by salty ocean water.
 - A mountainous area with natural springs.
- 31.** Mega City is facing a severe air pollution crisis. To address this, the city council proposes two solutions:
- Building a new highway to bypass traffic congestion.
 - Implementing a congestion pricing system where drivers pay a fee to enter the city centre during peak hours.
- Which solution is more likely to contribute to sustainable transportation goals?
- Solution A, as it will reduce traffic jams and encourage faster commutes.
 - Both solutions are equally effective in promoting sustainable transportation.
 - Neither solution is effective, as air pollution requires stricter industrial emission regulations.
 - Solution B, as it will discourage private car usage and incentivise public transport or carpooling.

32. This is not one of the possible adverse effects of the phenomena of global warming.
- | | |
|-----------------------------------|---------------------------|
| a. Extraordinary weather patterns | b. Retreat of glaciers |
| c. An increase of UVB radiations | d. Rise in the sea levels |
33. In a household aiming for water conservation, different practices are being considered to minimise water usage.
What practice would best conserve water at the household level and contribute to sustainable water usage?
- | |
|---|
| a. Running taps continuously while brushing teeth |
| b. Regularly watering the garden during peak sunlight |
| c. Using a dishwasher with full loads |
| d. Washing cars daily |
34. A municipality has been experiencing outbreaks of waterborne diseases due to the presence of harmful microorganisms in its water supply.
In order to eliminate disease-causing organisms and make the water safe for consumption, which crucial step in the water treatment process should the municipality prioritise?
- | | |
|------------------|-----------------|
| a. Sedimentation | b. Filtration |
| c. Aeration | d. Disinfection |
35. Tim's family planned a picnic near a lake. While they were there, dark clouds formed, and it began to rain heavily. Tim remembered studying about this stage of the water cycle. Which stage of the water cycle did the heavy rain represent?
- | | |
|----------------|------------------|
| a. Evaporation | b. Condensation |
| c. Collection | d. Precipitation |
36. The diagram shows a simplified version of the water cycle. Identify A given in sketch of water cycle.



- | | |
|------------------|----------------|
| a. Infiltration | b. Sublimation |
| c. Transpiration | d. Percolation |

37. In addressing the challenges of an overloaded power grid and environmental concerns, which approach strikes a balance between speed, cost-effectiveness, and long-term benefits?
- A hybrid approach, combining upgrades to existing infrastructure with the gradual introduction of microgrids, could provide a balanced solution balancing speed, cost, and long-term environmental benefits.
 - Upgrading existing infrastructure offers a faster and more cost-effective solution, ensuring immediate stability and integrating smart technology into established systems.
 - Decentralised microgrids powered by renewables promote energy independence, resilience to outages, and reduced reliance on fossil fuels, but their widespread implementation might require significant time and investment.
 - Focusing solely on renewable energy microgrids, regardless of the time and cost challenges, is the only ethical and responsible solution to combat climate change.
38. Jane, an avid hiker, embarked on a mountain trek. As she ascended, she noticed a change in temperature. The higher she climbed, the colder it became. Gasping for breath, she wondered about the atmospheric layers. What atmospheric phenomenon primarily causes the decrease in temperature as Jane ascends the mountain?
- Increase in oxygen levels
 - Decrease in atmospheric pressure
 - Decrease in altitude
 - Increase in humidity
39. In a coastal town, students observed marine life struggling due to pollution. Investigating the source, they identified an industrial site releasing chemicals into the water. What specific impact does chemical pollution have on marine life?
- Chemical pollution enhances marine biodiversity by promoting adaptation.
 - The chemicals boost nutrient levels, benefiting marine plant life.
 - Implementing coastal tourism initiatives reduces the impact of chemical pollution on marine life.
 - Chemical pollution harms marine species by causing toxicity and disrupting ecosystems.
40. Considering the absence of greenhouse gases, what might happen to the Earth's climate in the long term?
- The climate would become more stable and predictable.
 - There would be a gradual cooling of the planet.
 - Earth would experience extreme temperature fluctuations.
 - Climate patterns would remain the same.

Green Challenger (Each Question is 2 Marks)

41. Jenny is planning to power her home with a reliable and constant source of energy. She wants a source that does not produce harmful emissions. Which type of energy would best meet her criteria?
- Wind energy
 - Nuclear energy
 - Petroleum energy
 - Biomass energy
42. One summer, Peter and his friends ventured into the nearby woods. Continuing their exploration, the friends stumbled upon a meadow where they used to see a variety of butterflies during spring. However, this time, there were noticeably fewer butterflies. What could be a potential cause for this decline?

1. Decline in available nectar sources for butterflies.
2. Changes in temperature and weather patterns affecting the butterfly population.
3. Natural predator population increase, preying on butterflies.
4. Improved habitat conditions causing butterflies to move elsewhere.

- a. Only 1
b. Only 2
c. Both 2 and 3
d. Both 2 and 4

43. In the heart of a lush, sprawling forest, lived Kora the Koala. She was known for her love of eucalyptus leaves and her cozy tree-dwelling lifestyle. However, one fateful day, an unexpected event disrupted her serene life.

Kora found herself in search of a new home after a sudden forest fire destroyed her familiar surroundings. As she embarked on her journey to find a suitable place to settle, where would Kora most likely seek refuge?



- a. The savanna, a vast landscape filled with grasslands and scattered trees.
b. The desert, an arid expanse with minimal vegetation and extreme temperatures.
c. The forest, where dense trees and abundant vegetation create a cozy habitat.
d. The arctic, characterised by icy landscapes and freezing temperatures.
44. Sarah is concerned about the chemicals used in water treatment. What are some of the potential drawbacks of using chlorine for disinfection?
1. Chlorine can react with organic matter in the water to form disinfection byproducts, some of which are considered harmful to human health.
 2. Chlorine can contribute to taste and odour problems in the water.
 3. Chlorine can be harmful to aquatic life if discharged into the environment without proper treatment.

- a. Only 1
b. Only 2
c. Both 1 and 2
d. 1, 2 and 3

45. A manufacturing plant heavily relies on coal for energy generation. Over time, nearby vegetation starts to show signs of browning, and local residents complain about respiratory issues. What environmental impact is most likely a result of this plant's operation?

1. Soil enrichment
2. Reduced air particulate matter
3. Increased carbon sequestration
4. Airborne pollutants affecting plant and human health

- a. Only 1
b. Only 4
c. Both 2 and 4
d. Both 3 and 4

46. A community is looking to reduce plastic waste in their neighbourhood. Which of the following initiatives does not align with waste reduction efforts?

1. Setting up more recycling bins in the area
2. Implementing a ban on single-use plastics.
3. Distributing reusable shopping bags to residents
4. Encouraging the use of biodegradable plastics



- a. Only 1
b. Only 3
c. Only 2 and 3
d. 1, 3 and 4

47. At a school picnic, the weather turned warm, and the fruit salad prepared earlier started to smell odd.

What is the best action to take regarding the fruit salad?



- a. Serve the fruit salad but warn everyone about the odd smell.
- b. Keep the fruit salad in the sun to get rid of the smell.
- c. Discard the fruit salad to prevent potential food poisoning.
- d. Add more sugar or seasoning to mask the odd smell.

48. During a marine biology field trip, Emma and her classmates explored a tidal ecosystem. They observed the diverse life forms thriving in the area, including decomposers breaking down organic matter.

What might occur in the tidal ecosystem if the activity of decomposers significantly declined?

- a. Increased biodiversity due to reduced competition
- b. Accumulation of organic matter leading to oxygen depletion
- c. Faster recycling of nutrients within the ecosystem
- d. Improved water quality and clarity

49. A rapidly growing city is planning its expansion. Developer A proposes building high-rise apartments with minimal green space to maximise housing, while Developer B advocates for incorporating several large parks and green corridors throughout the development. A heated debate ensues, with arguments for and against each approach. Which developer makes the stronger case for the city's long-term well-being, and why?
- Developer A, as maximising housing density reduces transportation demands and promotes social interaction.
 - Developer B, as urban green spaces contribute to cleaner air, lower temperatures, and improved mental health of residents.
 - Both developers offer equally valid points, and the decision should be based on economic considerations.
 - Neither developer, as further studies are needed on the impact of green spaces in megacities.
50. You're on a camping trip with a friend, and you desperately need clean water for drinking. The only option is a muddy stream full of leaves. You have some coffee filters with you. You fill a cup with the murky creek water and pass it through the filter. Based on the scenario, answer the following questions:
- What will happen when you try to filter the water through the coffee filter?
 - Is this water safe for drinking?



- The filter will clog up quickly.
 - Yes
- The filtered water will be completely clear.
 - Yes
- The filtered water will still be slightly cloudy.
 - No
- The filter will dissolve in the water.
 - No

Answer Key

1.	b	2.	d	3.	b	4.	c	5.	d	6.	c	7.	b
8.	d	9.	a	10.	b	11.	d	12.	d	13.	d	14.	d
15.	c	16.	c	17.	c	18.	c	19.	b	20.	c	21.	b
22.	c	23.	b	24.	b	25.	b	26.	b	27.	b	28.	d
29.	c	30.	c	31.	d	32.	c	33.	c	34.	d	35.	d
36.	c	37.	a	38.	b	39.	d	40.	b	41.	a	42.	b
43.	c	44.	d	45.	b	46.	d	47.	c	48.	b	49.	b
50.	c												