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ENVIRONMENTAL SCIENCE LEVEL 6

ENV/OS/SCI/CC/05/6

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Apply Basic Principles of Environment

July/Aug 2025

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TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

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Date: 28.07.2025 08:07 AM

Time: 3 HOURS

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INSTRUCTIONS TO CANDIDATE

1. **Marks for each question are indicated in the brackets.**
2. **The paper consists of TWO sections: A and B.**
3. **Attempt ALL the questions in section A and any THREE questions in section B.**
4. **Candidates are provided with a separate answer booklet**
5. **DO NOT write on this question paper.**

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This paper consists of THREE (3) printed pages
Candidates should check the question paper to ascertain that all
pages are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)*Answer ALL the questions in this section.*

1. The components of the environment consist of the living and non-living elements that interact to form the natural surroundings in which organisms live. Name FOUR components of the environment (4 Marks)
2. Biogeochemical cycle is the process in which an element or a compound moves between its various living and nonliving forms and locations in the biosphere. Name FOUR biogeochemical cycles that are important to living organisms (4 Marks)
3. Over the years, human development activities have resulted in the misuse of resources leading to increased waste. Identify FOUR sources of waste generated from human activities (4 Marks)
4. The pollution pathway refers to how a pollutant moves from the source, enters into the environment, and finally reaches the human body. List FOUR ways in which pollutants reach the human body. (4 Marks)
5. Your organization has decided to comply with the Environmental Management and Coordination (Air quality) regulations. As an environmental advisor, propose FOUR practical measures that the organization can implement to control air pollution. (4 Marks)
6. Kenya has adopted resource conservation measures to maximize output while minimizing waste, energy consumption and environmental impact. State FOUR causes of low efficiency of use of resources (4 Marks)
7. Environmental resources can be categorized based on renewability, source of origin and development stage. Identify FOUR classifications of environmental resources based on development stage (4 Marks)
8. Positive enforcement mechanisms like incentives and subsidies are means for encouraging compliance in environmental protection. State FOUR reasons why the government may adopt positive enforcements. (4 Marks)
9. Environmental challenges from unsustainable consumption and production of resources impact society, economy and the environment. Highlight FOUR measures to resolve unsustainable consumption and production. (4 Marks)
10. Environmental policy instruments are tools used by the government to ensure environmental conservation and compliance in Kenya. Name FOUR types of environmental policy instruments. (4 Marks)

SECTION B (60 MARKS)***Answer Any THREE Questions in This Section***

11. Pollution is the introduction of contaminants into the environment beyond the natural background levels that can cause harm to living organisms. Pollution poses serious threats to human health and wellbeing, ecosystem health and threatens economic sustainability of a nation. Over the years, organizations have continuously evolved and adopted measures that can reduce environmental pollution.

a) Explain FIVE types of pollution (10 Marks)

b) Describe FIVE solutions to environmental pollution (10 Marks)

12. The failure of businesses to adhere to environmental legislations often renders them vulnerable to the risk of foreclosures. The judicial system in Kenya is tasked with enforcing environmental laws, some of which are usually aligned to Multilateral Environmental Agreements (MEA's).

a) Explain FIVE ways courts contribute in protecting the environment (10 Marks)

b) Explain FIVE multilateral environmental agreements that aim to protect the environment (10 Marks)

13. An ecosystem consists of all the living and non-living things that live harmoniously within a specific natural setting. For an ecosystem to be considered as a healthy ecosystem, the interactions between abiotic and biotic components should be maintained and closely monitored.

a) Explain FIVE types of ecosystems (10 Marks)

b) Explain FIVE types of species interaction that occur between organisms in an ecosystem (10 Marks)

14. Carrying capacity is the maximum number of organisms of a given species that an environment can comfortably support without depleting the available resources. Each ecosystem has it's carrying capacity within which organisms can survive and thrive. Resource conservation can help protect species within ecosystems. This requires deliberate efforts like reducing resource wastage and encouraging the adoption of renewable sources.

a) Elaborate FIVE ways the carrying capacity of an area can be lowered (10 Marks)

b) Describe FIVE ways of minimizing wastage of resources (10 Marks)