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052106T4ENS

ENVIRONMENTAL SCIENCE LEVEL 6

ENV/OS/SCI/CR/04/6

Manage Environmental Pollution and Waste

July/Aug 2025

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

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WRITTEN ASSESSMENT

Time: 3 HOURS

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INSTRUCTIONS TO CANDIDATE

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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 Answer question 11 and Any other **TWO** 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 FOUR (4) 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. A pollutant is any solid, liquid or gaseous substance present in such concentration that may cause serious harm to the environment. Name FOUR air pollutants. (4 Marks)
2. Safe disposal of hazardous wastes is mandatory towards maintaining a clean and healthy environment. Name FOUR characteristics of hazardous waste. (4 Marks)
3. Human reliance on natural resources and their continuous overexploitation activities generate solid wastes, leading to degradation of the environment. Identify FOUR types of solid waste. (4 Marks)
4. Land pollution is the contamination of soil by human and natural activities which cause harmful effects to living organisms. Identify FOUR sources of soil pollution. (4 Marks)
5. Noise is a form of pollution that directly impacts human health and affects animals. State FOUR impacts of noise pollution on human health. (4 Marks)
6. Point source and non-point source pollution are distinct ways pollution enters the environment. Differentiate between point source and non-point source of pollution. (4 Marks)
7. It is important to create awareness on noise pollution especially among those living or working in these areas. Outline FOUR noise pollution control measures. (4 Marks)
8. Governments and individuals can take several measures to manage and reduce pollution. List FOUR 4R's principles of waste management. (4 Marks)
9. After collection of sewage sludge, these wastes are often transferred to waste treatment ponds for further action. Identify FOUR types of waste treatment ponds. (4 Marks)
10. A major river that supplies drinking water to people in Kwenyu city is facing severe pollution. As an environmental expert, highlight FOUR measures that can be put in place to control water pollution. (4 Marks)

SECTION B (60 MARKS)

Answer Question 11 And Any TWO Questions in This Section

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11. In recent years, Kenya has faced escalating environmental challenges due to pollution and climate change. Rapid urbanization, industrial expansion and deforestation have contributed to severe air and water pollution. Nairobi has seen increased emissions from vehicles, industries, and poorly managed waste disposal sites. The city's air quality has deteriorated significantly, leading to rising cases of respiratory illnesses. Additionally, the Nairobi River has become heavily contaminated, thus affecting both aquatic ecosystems and neighboring communities.

Climate change has intensified environmental instability across Kenya. Prolonged droughts have disrupted agricultural activities, leading to food insecurity and economic losses for farmers. Water scarcity has become more pronounced, forcing communities to depend on unreliable sources. Meanwhile, unpredictable rainfall patterns have resulted in devastating floods, damaging infrastructure and displacing thousands of residents. The effects of pollution and climate change are interconnected—poor environmental management accelerates climate shifts, while climate change worsens pollution related issues.

In response to these challenges, Kenya has implemented several strategies to mitigate pollution and climate change. The government has reinforced environmental policies, restricting industrial pollution and promoting sustainable waste management practices.

Green energy initiatives, including geothermal and solar power projects have gained momentum in reducing dependence on fossil fuels. Over the past decade, the government has adopted community-driven reforestation programs to help restore degraded landscapes and absorb carbon emissions. Additionally, campaigns on proper waste disposal and plastic reduction have been introduced to curb pollution in urban areas.

While Kenya has taken significant steps toward sustainability, long-term solutions require stronger policy implementation, increased investment in environmental technologies, and enhanced public engagement in conservation efforts.

- a) Describe FIVE effects of climate change resulting from air pollution (10 Marks)
- b) Explain FIVE strategies which can help to control air pollution (10 Marks)

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12. A large agricultural region in Kenya has been emitting effluents causing water and soil pollution which negatively impact local communities that depend on these water sources for drinking and irrigation. Due to rising concerns about health risks and declining crop yields, policymakers and environmental agencies need to adopt sustainable solutions.

a) Explain FIVE causes of water pollution (10 Marks)

b) Explain FIVE control measures to soil pollution (10 Marks)

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13. With the increase in technological advancements and industrial activities, the generation of electronic and hazardous waste has become a pressing issue globally. The improper disposal of these wastes poses significant environmental and health hazards.

a) Elaborate FIVE benefits of proper e-waste management. (10 Marks)

b) Explain FIVE methods that can be used in the disposal of hazardous waste. (10 Marks)

14. The Kenyan government faces several challenges in wastewater treatment, impacting public health, environmental sustainability and economic development. By involving communities in wastewater management, authorities are able to ensure the maintenance of clean water sources.

a) Explain FIVE challenges faced by the Kenyan government in waste management.

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(10 Marks)

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b) Explain FIVE importance of community sensitization in waste water treatment.

(10 Marks)

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