

**NATIONAL UNIVERSITY OF LESOTHO**  
**BSc ENVIRONMENTAL HEALTH**  
**END OF SEMESTER B EXAMINATIONS**

**MAY 2023**

**TIME: 3 HOURS**

**EHS2305: GLOBAL WARMING AND CLIMATE CHANGE**

**100 Marks**

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**Instructions to candidates**

1. Answer **ALL** questions in the paper.
  2. Each question must be started on a new page.
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**QUESTION 1**                      **[20]**

a) Match the letters representing the concepts in column A to the correct answer in column B. [1 mark\*10]

<b>Column A</b>	<b>Column B</b>
A. Fuel-efficient electrical appliances	1. Climate
B. Mean and variability of relevant atmospheric variables such as temperature, precipitation and wind	2. Adaptation
C. A greenhouse gas of highest concern for global warming	3. Methane
D. A greenhouse gas generated through anaerobic digestion of organic waste material	4. Climate mitigation measure
E. Short-term fluctuations around the average climate	5. El nino Southern Oscillation
F. A function of the character, magnitude, and rate of climate change and the variation to which a system is exposed, including its sensitivity, and its adaptive capacity	6. Afforestation
G. Any adjustments in ecological, economic or social systems in response to actual or expected climatic stimuli and their impacts	7. Carbon dioxide
H. A warming of the ocean surface, or above-average sea surface temperatures, in the central and eastern tropical Pacific Ocean.	8. Vulnerability
I. Adaptation that is initiated and implemented by governments at all levels	9. Climate variability
J. A mitigatory carbon sink	10. Public Adaptation

- b) Classify each of the following as either a climate change mitigation strategy or a climate change adaptation strategy.
- i. A city installs permeable concrete sidewalks to absorb water during flood events;
  - ii. A city that has been experiencing drier than normal summers constructs several reservoirs for rainwater collection during the winter;
  - iii. A state encourages residents to drive vehicles that do not require petrol but use renewable energy;
  - iv. To address rising sea levels, a coastal city changes its building codes to prohibit any additional development within 1 km of the beach;
  - v. A country pledges to cut its greenhouse gas emissions by 20% by the year 2025. [10]

**QUESTION 2 [30]**

- a) Explain how the following affect Earth's climate:
- i. Greenhouse gases; [4]
  - ii. Oceans; [4]
  - iii. Albedo effect. [4]
- b) Using an example, briefly explain how the following can be affected by climate change:
- i. Food systems; [6]
  - ii. Water resources; [6]
  - iii. Human disease patterns. [6]

**QUESTION 3 [20]**

- a) Briefly outline how the following local and international tools support the control of global warming and climate change:
- i. Kyoto Protocol; [4]
  - ii. Paris Agreement; [4]
  - iii. Lesotho Climate Change Policy. [4]
- b) Mention any 2 options/ actions of the Lesotho National Adaptation Plans of Action(NAPA) and explain how the selected option will ensure adaptation to climate change in Lesotho. [8]

**QUESTION 4**

**[30]**

a) Using a diagram, illustrate how Earth maintains the energy balance. [8]

b) Outline five roles of the Environmental Health Practitioner (EHP) in climate change adaptation and mitigation. [10]

b) A group of scientists aim to assist a country to adapt and mitigate climate change impacts. They aim to start with identifying vulnerability to climate change. Suppose your organization has already undertaken a climate change vulnerability assessment. You have been tasked to brief the scientists by giving information.

- i. Mention any 2 vulnerable communities and 2 vulnerable geographic locations; [4]
- ii. With justification, explain why the communities and locations in b) i.) above are vulnerable. [8]

**.....END OF PAPER.....**