

NATIONAL UNIVERSITY OF LESOTHO

B.Sc. EXAMINATION

ES 4301- Environmental Sustainability

May 2023

Total Marks: 100

Time: 3hours

INSTRUCTIONS

- Question **one (1)** is mandatory
- *Answer any other three (3) questions*
- Each question carries **25 marks**

Question 1

To obtain a sustainable environment, the World came up with Sustainable Development Goals (SDG) and the 2030 Agenda. SDG 15 among others talks about reversing land degradation and combating desertification.

- a) Explain actions that can reverse land degradation. [10]
- a) What actions can be taken to prevent desertification? [15]

[25]

Question 2

a) Briefly discuss the consequences brought by Climate change on the following;

- i. Biodiversity [5]
- ii. Agriculture [5]
- iii. Forestry [5]

b) State and explain key principles and practices for managing soil resources. [5]

c) List and explain the key aspects of water resources management. [5]

[25]

Question 3

a) State Natural sources of Air Pollution. [5]

b) How can we Control Air Pollution using: Cyclone Separators, Fabric Filters, Particulate Scrubbers, Electrostatic Precipitators and Scrubbers [10]

c) What are the ways for avoiding Noise Pollution? [5]

d) Explain the effects of soil pollution on human health. [5]

[25]

Question 4

- a) List any five advantages of sanitary landfill. [5]
- b) Compare and contrast between the Landfills and Incinerator. [5]
- c) Briefly explain the following characteristics of Hazardous Waste.
 - i. Flammability and Ignitability [2]
 - ii. Corrosivity [2]
 - iii. Reactivity [2]
 - iv. Toxicity [2]
 - v. Infectivity [2]
- d) What are the concerns about Hazardous Waste Management? [5]

[25]

Question 5

- a) Explain the concept of Environmental and Social Impact Assessment (ESIA) [3]
- b) Briefly explain the following steps used in ESIA
 - i. Screening [2]
 - ii. Scoping [2]
- c) Expand on the following methodologies used in ESIA
 - i. Checklists methods [5]
 - ii. Networks methods [5]
- d) Technique and method for the evaluation of impacts should have the qualities and characteristics. List them. [8]

[25]

Question 6

How can we use GIS and remote sensing in the following areas?

- a) Land use and cover mapping [5]
- b) Natural resources [5]
- c) Environmental impact assessment [5]
- d) Climate change [5]
- e) Disaster management [5]

[25]