

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**THIRD YEAR EXAMINATION FOR THE AWARD OF
DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE**

ENSC 332: ENVIRONMENTAL RISK ASSESSMENT

STREAMS:

TIME: 2 HOURS

DAY/DATE: TUESDAY 6 /07/ 2021

11.30 AM – 1.30 PM

INSTRUCTIONS:

- Answer ALL Questions in SECTION A and ANY TWO in SECTION B
- Do not write anything on the question paper

SECTION A (30 MARKS)

- Q1. Briefly explain the importance of undertaking an Ecological Risk Assessment. [5 Marks]
- Q2. With a simple schematic diagram, highlight what you understand by the term ‘Dose-response relationship’. [5 Marks]
- Q3. Outline factors that are used in determining the level of risk in both humans and environment as a result of exposure. [5 Marks]
- Q4. Describe steps followed in managing risks to eliminate and or reduce potential harm to people, the environment and or other assets. [5 Marks]
- Q5. A lot of waste is generated from households especially in major cities in Kenya and disposed in unregulated dump sites or burned in open fields. Identify potential hazards in the dumpsite(s) which may pose negative consequences to human health and the environment. [5 Marks]

Q6. Identify FIVE potential hazards within Chuka University and its environs and propose ways of preventing or minimizing the hazards. [5 Marks]

SECTION B (40 MARKS)

Q.7. a) You are a risk assessor working for Tharaka Nithi County and have been asked to look at the risks posed by a leaking municipal liquid waste dump. The dump was created in the 1980s and lies right along the shore of Thuci River. There are families living less than one kilometer away. Although there are hundreds of chemicals leaking from this dump, the primary chemicals of concern are polychlorinated biphenyls (PCBs) and chromium, both of which are known to be hazardous to human health and ecosystems. These chemicals are known to be present in soil on top of the dump as well as in groundwater and surface water in Thuci River. Discuss the potential exposure pathways considering all the possible targets for these chemicals for both humans and animals.

[10

Marks]

b) Discuss different approaches to risk acceptance developed to determine risk related to an activity or a system is acceptable in a society. [10

Marks]

Q.8. You have been contracted to carry out an Environmental Risk Assessment for a proposed landfill in Nairobi. With a good diagram, describe the procedure or steps you will follow to carry out the assessment. [20 Marks]

Q.9. Discuss the application of Environmental Risk Assessment and outline its strengths and shortcomings. [20

Marks]

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