



UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA
SECOND SEMESTER EXAMINATIONS, MAY 2019

COURSE NO: ES 278

COURSE NAME: ENVIRONMENTAL PROCESS ENGINEERING

CLASS: ES 2

TIME: 3 HOURS

Name: _____ Index Number: _____

Attempt all questions

1. Define the following terms

- a. Clean Technology
- b. Cleaner Technology
- c. Life Cycle Assessment
- d. Black water
- e. Grey water

[10 MARKS]

2. Differentiate between the following terms

- a. Influent and Effluent
- b. Sewage and Sewerage
- c. Coagulation and flocculation
- d. Sludge and slurry
- e. Adsorption and ion exchange

[10 MARKS]

3. a. Identify the main sectors clean tech covers.

[2 MARKS]

b. Highlight 4 benefits of cleaner technology.

[2 MARKS]

c. With the aid of a diagram, briefly explain the sludge treatment process.

[6 MARKS]

d. State 4 differences between physisorption and chemisorption.

[4 MARKS]

e. Identify 4 reasons why waste may be considered hazardous.

[4 MARKS]

- f. Identify 5 factors to consider in selecting wastewater treatment methods **[5 MARKS]**
- g. Identify 4 methods used in Cyanide detoxification. **[2 MARKS]**
4. You have been contracted by the UNICEF to be an ambassador for waste management in Ghana. Your job description includes organising an outreach to various parts of the country. Design and conduct outreach program to schools in Ghana adopting an ecologically sound waste management system which includes:
- a. waste reduction
 - b. segregation at source
 - c. composting
 - d. recycling and re-use
 - e. more efficient collection
 - f. more environmentally sound disposal **[15 MARKS]**

Examiner: Dr Ishmael Quaicoe