

UNIVERSITY OF SWAZILAND
FINAL EXAMINATION – 2018

TITLE OF PAPER : Environmental Pollution

COURSE NUMBER : CHE 613

TIME : Three Hours

INSTRUCTIONS:

Answer any four (4) questions of the six (6) questions and every question holds 25 marks. NB: All questions are to be answered in a separate answer sheet. The points for every question are indicated within brackets.

Question (1)

- i) What is meant by point source and non-point source pollution? Give examples of the two with your outlook on pollution prevention. (8)
- ii) How do criteria pollutants contribute to the pollution of the atmosphere? and Which pollutant contributes more to pollution? (10)
- iii) What are the compounds of lead and mercury that are more health hazards than their metallic forms and why are lead and mercury considered as health risk? (7)

Question (2)

- i) Carbon Monoxide (CO) and Hydrogen Cyanide (HCN) are poisonous for humans and animals. Explain how these chemicals are produced and the mechanism of action that eventually making them poisonous. (7)
- ii) Analyze and indicate the impact of the criteria pollutants on human health taking the relation bellow. Arrange them in the order of their impact
$$\text{Risk} = \text{Hazard} \times \text{Exposure} \quad (8)$$
- iii) Through what environmental media can humans and animals be exposed to pesticides? Explain how each exposure could occur. (10)

Question (3)

- i) Differentiate between point source and non-point source pollution of fresh water. How can we prevent non-point source pollution of water? Give examples of both sources of water pollution. (8)
- ii) People say mining can be a grace or a disgrace to a given country or society. Explain the impact of mining on the water and land resources of a given environment. (10)
- iii) Water-pollution is made worse by population growth and large scale agricultural activities. Explain. (7)

Question (4)

- i) In most developing countries waste treatment is costly. How can we prevent pollution proactively from waste and give examples to support your choice? Explain. (10)
- ii) What are the adverse effects of excess nutrients? Explain taking the case of nitrogen and phosphorus? (8)
- iii) The main source of energy used in the planet is fossil fuel. How does it contribute to pollution and what can be done to reduce pollution in the planet? (7)

Question (5)

- i) What is greenhouse gases effect and how does it contribute to global warming? (6)
- ii) What is the role of carbon dioxide in the atmosphere? Explain. (7)
- iii) What does half-life of greenhouse gases in the atmosphere indicate? (5)
- iv) Which of the greenhouse gases contribute to negative ecological effects? (7)

Question (6)

- i) Explain the toxicological effects of Mercury, Lead, Cadmium, Chromium and Arsenic. (8)
- ii) What do you understand by the short hand PBT chemicals? Explain. (5)
- iii) What steps, if any, would you take to reduce the impact of waste? (6)
- iv) What management practices would you recommend that makes ecological resources sustainable? (6)