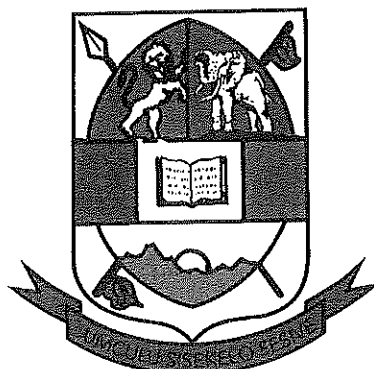


UNIVERSITY OF ESWATINI**MAIN EXAMINATION 2019/2020**

TITLE OF PAPER: SPECIAL TOPICS IN ENVIRONMENTAL ANALYTICAL CHEMISTRY

COURSE NUMBER: CHE636

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS: ANSWER ANY TWO (2) QUESTIONS FROM SECTION A AND ANY TWO (2) QUESTIONS FROM SECTION B.

PLEASE DO NOT OPEN THIS PAPER UNTIL AUTHORISED TO DO SO BY THE CHIEF INVIGILATOR.

SECTION A: ENVIROMENTAL TOXICOLOGY**Question 1 (25 marks)**

- (a) Briefly discuss the terms: potency; efficacy; and margin of safety in relation to interpreting dose response data from toxicity studies of one or more toxicants.

Question 2 (25 marks)

- (a) Discuss the steps involved in risk assessment process. [20]
(b) Outline 5 sites of exposure to environmental chemicals. [5]

Question 3 (25 marks)

- (a) Discuss with examples the 5 major classes of pollution.

SECTION B: ENVIRONMENTAL LAW

Question 4 [25]

- (a) Give the operational definition of “Environmental Law” [3]
- (b) The Constitution of Swaziland Act of 2005 is the supreme law of the land. Explain how environmental management is enshrined in this piece of legislation. [4]
- (c) Eswatini environmental laws with regards to air quality were enacted on the principles of the Vienna Convention.
- (i) Outline the principles of the Vienna Convention. [4]
- (ii) Give an example of legislation that was enacted by Eswatini emanating from this convention, and explain how it ensures that Eswatini complies. [3]
- (d) Eswatini has ratified the Minamata Convention.
- (i) Outline the basic principles of this convention. [5]
- (ii) Discuss the procedure that Eswatini will follow to domesticate this convention. [6]

Question 5 [25]

- (a) What is meant by “The Polluter Pays” principle. [3]
- (b) What is the difference between a “Protection Order” and an “Order of the High Court” in Eswatini. [4]
- (c) Eswatini environmental laws are often enacted to comply with international agreements.
- (i) Outline the principles of the Inco-Maputo Agreement between Mozambique, Eswatini, and South Africa. [4]
- (ii) Give two (2) examples of legislation that arose from this agreement and explain how each ensures that Eswatini complies. [6]
- (d) Perhaps the most important international agreement to which Eswatini is signatory is the Kyoto Protocol/Paris Agreement in regards to global warming.
- (i) Outline the principles of Kyoto Protocol/Paris Agreement. [4]
- (ii) The Executive Arm of the Government has outlined its policy for complying with the Paris Agreement through a “5-year road map (2020-2025)”. In regard to this roadmap describe the actions that the Ministry of Natural Resources and Energy intends to take in order to comply with the Paris Agreement. [4]

Question 6 [25]

- (a) Outline the basic principles of the Rio Declaration of 1992 [5]
- (b) Explain the role of each of the three (3) arms of government in enacting environmental policies, regulations and laws in Eswatini. [9]
- (c) Outline the agreements that Eswatini has with South Africa regarding waste oil management in the country [5]
- (d) (i) What is meant by “legal reforms”. [1]
- (ii) Explain why legal reforms are needed in Eswatini, particularly with regards to the Minamata Convention, of which Eswatini is now a signatory of. [5]