

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF ENVIRONMENTAL SCIENCE**  
**DEPARTMENT OF ENVIRONMENTAL SCIENCE AND HEALTH**  
**BACHELOR OF ENVIRONMENTAL SCIENCE HONOURS DEGREE**  
**FINAL EXAMINATIONS**

**ECOTOXICOLOGY: ESH 2204**

May 2011

Time allowed: 3 Hours

Total Marks: 100

**INSTRUCTIONS:**

**Answer any FOUR questions. Each question carries 25 marks**

- 1a) Describe the role of xenobiotic metabolizing enzymes in the toxicity and detoxification of the herbicide paraquat. (20 marks)
- 1b) Briefly describe the bio-effects which occur when a pollutant invades living organisms. (5 marks)
- 2a) Compare and contrast the nature of effluent produced in soft drink producing and meat processing industries. (12 marks)
- 2c) Allina red is a new dye developed for use in the beverage industry. Describe the various tests that the dye has to undergo before it can be marketed. (13 marks)
- 3a) Describe trans-membrane movement of molecules in living organisms . (20 marks)
- 3b) Identify the factors that affect absorption of toxic agents by living organisms. (5 marks)
- 4a) Briefly describe the following terms:
- i) Phytoestrogens (7 marks)
  - ii) Xenoestrogens (2 marks)
  - ii) Vitellogenesis (3 marks)
- 4b) Discuss endocrine disruptors. In your answer include three named examples and potential exposure routes. (13 marks)
- 5a) Discuss the disposition of xenobiotics in biological systems. (20 marks)
- 5b) List the characteristics of bioindicator species (5 marks)
- 6a) Define risk assessment and briefly describe hazard identification (15 marks)
- 6b) Using a defined example describe how biological monitoring can be used in detecting exposure to organophosphorus pesticides. (10 marks)