

**UNIVERSITY OF SWAZILAND**  
**FACULTY OF HEALTH SCIENCES**  
**FINAL EXAMINATION PAPER**  
**FIRST SEMESTER [2011/2012]**

---

TITLE OF PAPER : ENVIRONMENTAL POLLUTION  
COURSE CODE : EHS 550  
TIME : 2 HOURS  
MARKS : 100

**INSTRUCTIONS**

1. DO NOT OPEN THIS EXAMINATION PAPER UNTIL YOU ARE INSTRUCTED TO DO SO BY THE INVIGILATOR.
2. CHOOSE AND ANSWER FOUR QUESTIONS ONLY, OUT OF THE FIVE QUESTIONS PRESENTED IN THIS PAPER.
3. NO FORM OF PAPER SHOULD BE BROUGHT INTO NOR TAKEN OUT OF THE EXAMINATION ROOM.
4. BEGIN YOUR ANSWERS TO EACH QUESTION ON A SEPARATE SHEET OF PAPER.
5. NUMBER ALL YOUR ANSWER SHEETS IN ACCORDANCE WITH THE FLOW OF YOUR ANSWERS.
6. WRITE CLEARLY; MARKS WILL NOT BE AWARDED WHERE HANDWRITING IS NOT POSSIBLE TO READ.
7. USE PROPER ENGLISH LANGUAGE GRAMMAR; POOR ENGLISH GRAMMAR SHALL RESULT IN LOSS OF MARKS.

### QUESTION ONE

The questions presented below are related to oil pollution, oil clean-up techniques and surface water pollution.

- a) The United Nations now firmly believes that transportation of oil by ships must be banned because any oil spill anywhere anytime results in significant environmental damage. As an environmental manager, you argue that impacts are only related to certain factors. What factors are these? [8 Marks]
- b) Using examples, discuss five major impacts associated with oil spills in oceans ( environmental or economic or social). [10 Marks]
- c) Discuss three negative impacts of sedimentation in surface water. [6 Marks]
- d) When using chemical methods to clean off oil from seas, is there any cause for concern regarding further unintended environmental impacts? If yes, discuss one such concern. If not, explain why not. [1 Mark]

Total number of marks under question one

[25]

### QUESTION TWO

The questions presented below are related to surface water pollution, oil pollution and the effects of air pollution.

- a) State five examples of organic water pollutants that are rich in nutrients. [5 Marks]
- b) What is BOD? [2 Marks]
- c) Following the devastating oil spill off the Gulf of Mexico recently, many still believe that the environmental impacts could have been much less significant if only there were immediate efforts to clean the oil off using chemical methods. In not more than three points, discuss the said chemical methods. [6 Marks]
- d) Following complaints from the small community of Ezulwini about the collapse of an entire aquatic ecosystem (the drying and filling-up of the Mbabane River with sediment), a full environmental audit was demanded by the SEA. At the completion of the audit, it was concluded that the piggery farms and food processing industries were the ones that led to all the damage. How did this happen? [10 Marks]
- e) State two immediate health effects of air pollutants. [2 Marks]

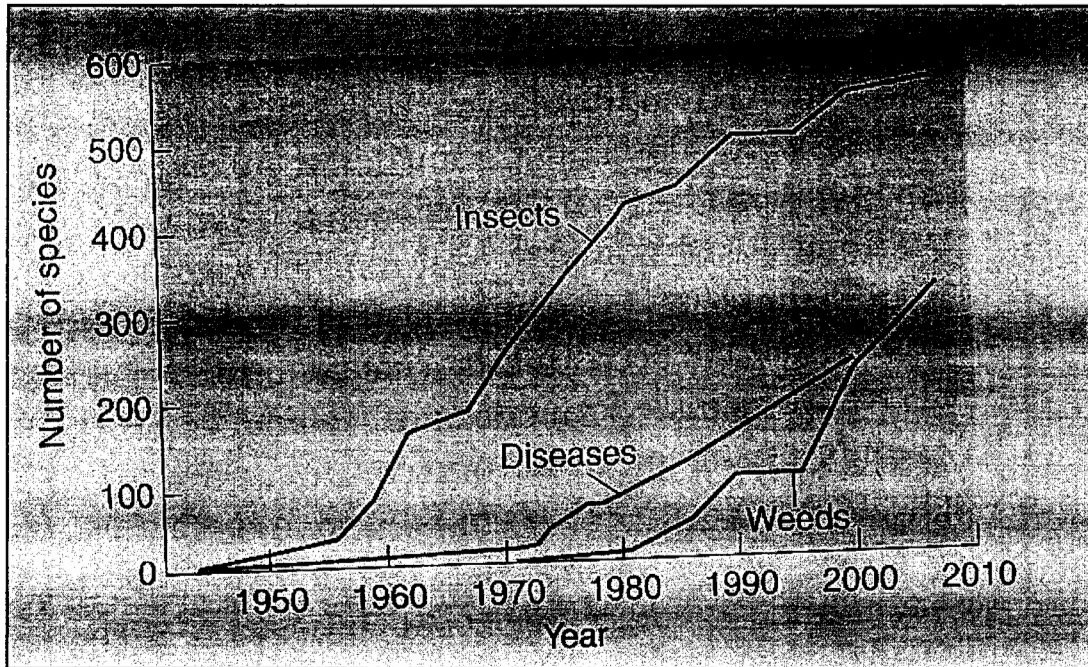
Total number of marks under question two

[25]

### QUESTION THREE

The questions presented below are related to characteristics of POPs, pesticide use and household hazardous waste.

- a) Discuss four red-flag characteristics of POPs/PTB. [12 Marks]
- b) State five examples of common hazardous household products that often end up as hazardous waste. [5 Marks]
- c) Insecticide use has increased ten-fold since the 1950s; however, according to the graph given below (Figure 1), there are now more insect pests, plant pathogens and weeds. Why? [8 Marks]



Question 3 - Figure 1: Current numbers of species of insects, plant pathogens and weeds in many farms in various places.

Total number of marks under question three

[25]

#### QUESTION FOUR

The questions presented below are related to the impacts of pesticides and waste management.

- When applying pesticides, should farmers be concerned about triggering a rapid growth of pests, yes or no? [1 Mark]
- Using examples, elaborate on your answer given in (a) above. [5 Marks]
- The annual report of the International Agricultural Association has, amongst the biggest highlights, stated that in 2011, there was a significant increase in the use of pesticides in both developed and developing countries. However, there were more pesticide-related deaths in Southern Africa compared to Austria, Canada and Japan. In four points, describe the factors that led to this situation. [8 Mark]
- State three environmental controls that can be used to control pests without using chemicals. [3 Marks]
- Discuss four factors that contribute to the ever growing mountains of solid waste. [8 Marks]

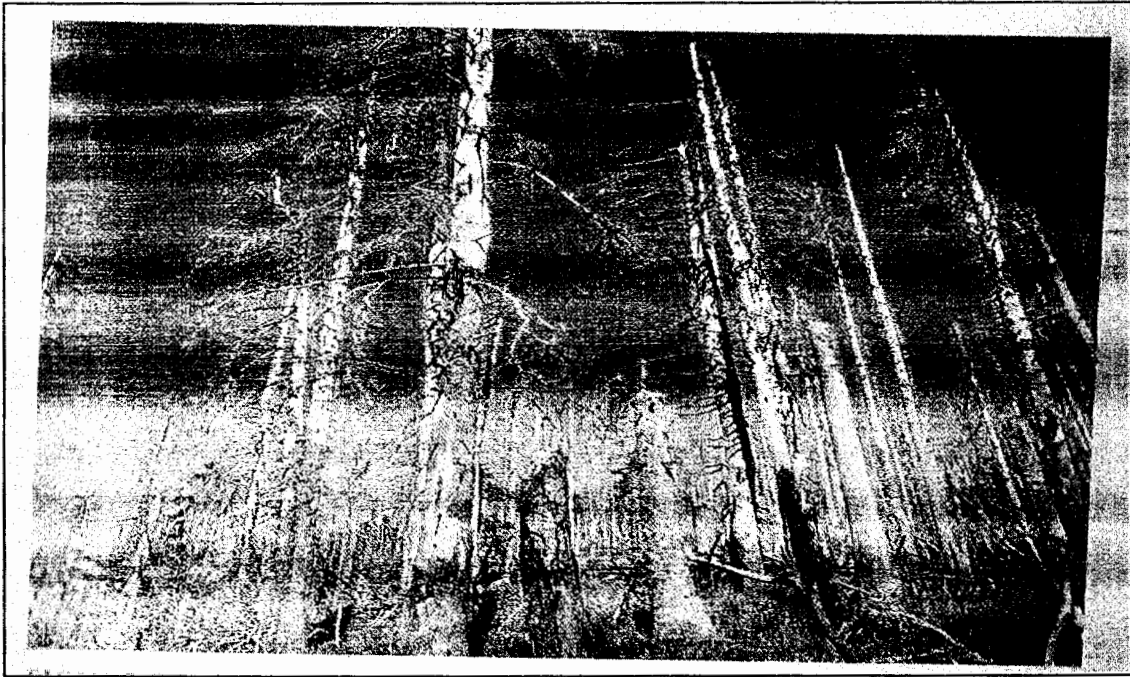
Total number of marks under question four

[25]

## QUESTION FIVE

The questions presented below are related to air pollution, acid deposition and thermal pollution.

- a) A famous forest in Germany, as shown in Figure 2 below, is literally a dead forest. The causes of the current state of the forest are related to air pollution. Explain the processes that have led to the present state of the forest [10 Marks]



Question 5 - Fig 2: A forest in Germany, which is now considered dead.

- b) The populations of fish and aquatic birds are always on the decline in lakes and rivers affected by acid deposition, why? [8 Marks]
- c) Naturally, can the respiratory system in human beings withstand the impacts of air pollutants, yes or no? [1 Mark]
- d) Elaborate on your answer given in (c) above. [4 Marks]
- e) A recently established nuclear power plant (which releases warm water to the ocean) has attracted hordes of fish species to the beach in Maputo. Subsequently, there has been an increase in sea birds feeding on the fish - a perfect environment for both fish and birds. As an environmental manager, explain why this worries you. [2 Marks]

Total number of marks under question five

[25]