

(Please Turn Over)

EASTERN UNIVERSITY, SRI LANKA
SECOND YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE –
2003/2004
ENVIRONMENTAL ENGINEERING (AEN 2101)

Answer all questions
Time allowed: 3 Hours

1.
 - a. Define the term 'Environmental Impact Assessment (EIA)', and state the principle of the Rio Declaration that is directly linked to it.
 - b. i. What is an environmental impact, what are its components and how can it be distinguished?
ii. Using appropriate graph(s) show the process pathway for a project that has:
a. a positive impact on the environment; and b. a negative impact on the environment
 - c. Draw the flow diagram showing the main components of an EIA system.
2.
 - a. What do you understand by the term 'water pollution'?
 - b. List the different types of activities that cause water pollution
 - c. How can water pollution control be effectively implemented?
 - d. Explain the socio-environmental consequences of illicit encroachment and land filling of peripheral wetlands around the Batticaloa Lagoon
3.
 - a. How can air pollutants be classified (give appropriate examples as well)?
 - b. What are the health hazards created by asbestos?
 - c. How can air pollution be controlled?
 - d. What do you understand by the term 'source reduction' in **pollution control**?
4.
 - a. What do you understand by environmental modelling?
 - b. What are the advantages of environmental modelling as a tool in environmental engineering?
 - c. A forest plantation of *Kesuarina equisifolia* (a fictional dry deciduous tree species that produces class 1 timber) was planted on 4th April 1970. *K. equisifolia* takes about 20 to 25 years to reach maturity and can propagate by underground propagules in addition to propagation via seeds. Briefly explain what will happen if a forest fire destroys the plantation in 2003? Assume that the plantation was left as it were after the fire event and no anthropogenic activities were involved afterwards.
 - d. Considering the changes in the recent climate, what could be the possible consequences of forest destruction in the Batticaloa District during the past three decades? Explain briefly.

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5.

- a. 'Nearly seventy percent or more of the planet Earth's surface is water'. If so, why is freshwater considered as a **finite** and **precious** resource? Explain.
- b. With the aid of a suitable diagram explain what happens to the water, which falls in the form of precipitation on the Earth's surface.
- c. Large scale Irrigation Development Schemes (i.e. The Mahaweli Project); have been implemented in Sri Lanka as a part of the development process. You are required to discuss the disadvantages and advantages of implementing such schemes with reference to the impacts on the environment.

6.

- a. List out methods available to manage solid wastes.
- b. Which (in your opinion) is the most eco-friendly method for disposing solid wastes (you should also state why), what are its advantages and disadvantages?
- c. What do you understand by the term 'source reduction' in **waste management**?
- d. Write a brief account on 'constructed wetlands'.