



THE OPEN UNIVERSITY OF SRI LANKA

POSTGRADUATE DIPLOMA IN ENVIRONMENTAL SCIENCES

LEVEL 7

NEP 2203/1204 – INDUSTRIAL AND URBAN ENVIRONMENTAL HAZARDS
FINAL EXAMINATION – 2009 (OPEN BOOK EXAMINATION)

DURATION: THREE HOURS

Date: 25th February 2010

Time: 9.30 a.m. – 12.30 p.m.

ANSWER ANY FOUR (04) QUESTIONS ONLY

**PLEASE ENSURE THAT ANSWERS FOR EACH QUESTION SHOULD
BE GIVEN IN SEPARATE BOOKS**

1. The world is facing an energy crisis and global warming caused by greenhouse gases. When these issues are discussed the emphasis is on energy conservation and use of alternative energy. One alternative suggested is bio-energy and growing crops to produce bio diesel and alcohol. The present form of intensive agriculture is a heavy indirect-consumer of energy in producing urea and petroleum based chemicals needed for agriculture. Further, there is a possibility of productive land, now used for food production, being diverted to produce energy-crops.

Explain how you would assess a proposal, to produce energy from growing biomass, taking these factors into account.

2. "Hamilton" canal is a heavily polluted water resource flowing next to the Open University premises and is a threat to the aesthetic value of the university environment. Therefore the university administration has decided to clean the canal. Assuming that you are a member of the environmental protection committee of the university which will be given the responsibility of the above mentioned task, identify and discuss possible human activities that could pollute "Hamilton" canal and measures that could be applied to enhance water quality.

3. Management of solid waste is a growing problem in Sri Lanka. Open dumping of solid waste has been the most common disposal practice in Sri Lanka, which is associated with the highest environmental, health and social costs. The analysis of data on sources of waste production of Sri Lanka reveals the largest fraction of domestic and commercial solid waste is organic and biodegradable that is suitable for compost production. Considering all approaches, propose a solid waste management plan for the Open University premises and briefly discuss the factors affecting solid waste management decision making.
4. "Caution is needed in the use of mobile phones by children. It is best that they should be discouraged from using them at all." Do you agree or disagree with the statement? Comment.
5. According to ambient air quality standards for Sri Lanka the allowed level of suspended particulate matter is $300\mu\text{g}/\text{m}^3$. The problem of fine particulates is quite acute. According to a study conducted recently sulphation rate and dust fall have been determined at busy intersections in Colombo city. The results show that Slave Island junction is the worst affected with sulphation and dust falls. Dust fall value is high owing to poor maintenance of roads, construction activities and general lack of understanding amongst the public about the harmful effects of fine particles.

Using the above as an example, briefly discuss the methods which you can apply to monitor air pollution in Colombo area.
6. Briefly discuss elements that you could identify in the Colombo city as visually polluting.