



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

CITY CAMPUS

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF
ENVIRONMENTAL SCIENCE

ENS 808: INDUSTRIAL ECOLOGY SUSTAINABLE DEVELOPMENT

DATE: Monday 5th February 2018

TIME: 5.30p.m - 8.30p.m

INSTRUCTIONS:

Answer question ONE and any other FOUR questions.

1. a) Briefly explain the following:
 - i) Industrial symbiosis [2 marks]
 - ii) Design for Environment [2 marks]
 - iii) Ecolabeling [2 marks]
 - b) Explain the benefits of conducting a Life Cycle Assessment of a given industrial product. [8 marks]
 - c) Describe waste management hierarchy as applied in industrial ecology. [8 marks]
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2. Explain the concept of cleaner production in relation to a sugar manufacturing factory. [12 marks]
 3. Describe how you would carry out a waste minimization programme in a cement manufacturing plant. [12 marks]

INVOLVEMENT IN ANY EXAMINATION IRREGULARITY SHALL LEAD TO DISCONTINUATION

4. Critically evaluate the disposal methods for industrial wastes as practiced in developed and developing countries. [12 marks]
5. Discuss the Japanese SHAR law and how it may be applied in the management of e-waste in developing countries. [12 marks]
6. The paper manufacturing plant at Webuye intends to adopt Environmental Management System (EMS) in its operations. Discuss the key elements it should consider in implementation of the EMS and explain the significance of adopting the ISO 14001 standards. [12 marks]
7. Discuss the main challenges of waste management in Kenya and their implications to attaining sustainable development goals. [12 marks]

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