MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF AGRICULTURE AND NATURAL RESOUNCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL STUDIES

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIED (RESOURCE CONSERVATION)

BACHELOR OF ENVIRONMENTAL STUDIES (COMMUNITY DEVELOPMENT)

ESU 305: ENVIRONMENTAL ECONOMICS

DATE: 2/8/2017 **TIME: 8:30 – 10:30 AM**

INSTRUCTIONS: Answer Question One and Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

(a) Explain the meaning of the following terms:

(i) Static efficiency (3 marks)

(ii) Pecuniary externalities (3 marks)

(iii) Scarcity rent (3 marks)

(iv) Stated preference (3 marks)

(v) Persistent Pollutants (3 marks)

(b) Describe the core characteristics of an efficient structure of property rights. (6 marks)

(c) Explain the potential of using Geographic Information Systems (GIS) in economic valuation of environmental resources in Kenya. (9 marks)

QUESTION TWO (20 MARKS)

(a) State the three main categories of instruments employed in pollution control. (6 marks)

(b) Assume that a state agency approaches you for a consultancy to develop appropriate instruments to control environmental pollution in Nairobi County. Using a specified category, describe any seven instruments that you would consider in the assignment. (14 marks)

QUESTION THREE (20 MARKS)

(a) Briefly explain the key attributes used in characterization of pollution control instrument. (6 marks)

(b) Describe any seven recommended criteria for selection of pollution control instruments in developing countries like Kenya. (14 marks)

QUESTION FOUR (20 MARKS)

Assume the market demand function for a normal environmental good is $P = 80 - q$, and the marginal cost of producing it is $MC = 1q$, where P is the price of the product and q is the quantity demanded and/or supplied.

(a) How much would be supplied by a competitive market? (5 marks)

(b) Compute the consumer surplus and producer surplus. Show that their sum is maximized. (5 marks)

(c) Compute the consumer surplus and the producer surplus assuming this same environmental good was supplied by a monopoly. (Hint: The marginal revenue curve has twice the slope of the demand curve.) (10 marks)

QUESTION FIVE (20 MARKS)

(a) State the first equimarginal principle. (5 marks)

(b) Using a labelled diagram, explain how externalities are a source of market failure. (15 marks)