



Doon University, Dehradun
Final Examination, 2016
School of Social Science
MSc Semester – IV (Economics)
Course – SSEI -224
Environmental Economics

Time Allowed: 3hrs

Maximum Marks: 50

Section - A

(5x2 = 10 Marks)

Attempt all questions

1. What are natural and anthropogenic pollutants? Give examples of each.
2. State the difference between point sources and non-point sources of pollution. Explain with the help of examples.
3. What is the advantage of deposit/refund system over pollution charge?
4. Explain different types of environmental standards.
5. Define environmental Kuznets Curve with the help of diagram.

Section - B

Attempt any five questions

(5x4=20 Marks)

1. What is Agenda 21? What were the major issues covered within Agenda 21?
2. Discuss the key elements of Kyoto Protocol to the UNFCCC?
3. Assume that there are two polluting sources in a given region. Each of which generates 30 units of pollution for a total of 60 units released into the environment. To meet the standards 60 units of pollution must be abated in total. The two polluting sources face the following abatement costs:
 $MAC_1=32+A_1$
 $MAC_2=20+5A_2$
 The costs are measured in thousands of dollars.
 - a. Prove that a uniform standard will not meet the cost-effectiveness criterion.
 - b. Determine how the abatement levels should be reallocated across the two firms to minimize costs.
4. What are public goods? Explain their characteristics with examples.
5. Explain the following terms:

a. Global pollution	b. Environmental quality
c. Biocentrism	d. Anthropocentrism

6. With the help of an example explain how property rights can play an important role in obtaining efficient solution.

Section –C

Attempt any four questions

(4x5=20 Marks)

1. Explain different categories of market-based instruments with the help of which environmental objectives are implemented.
2. The government launches a voluntary emissions trading program, which allows polluters to achieve cost-effective solutions when meeting the environmental objectives. Suppose that the objectives for two major firms in an urban area is 16 percent reduction in carbon monoxide(CO) emissions and that each firm faces the following costs:
Firm 1: $TAC_1=1000+2.5(A_1)^2$
 $MAC_1=5A_1$
Firm 2: $TAC_2=500+1.5(A_2)^2$
 $MAC_2=3A_2$
 A_1 and A_2 represent the percentages of CO emission abatement achieved by firm 1 and firm 2, respectively; TAC and MAC are measured in thousands of dollars.
 - a. Calculate the TAC and MAC for each firm if a uniform abatement standard were used.
 - b. Based on your answer to part a, is there an economic incentive for the sources to participate in the trading program?
 - c. Quantify the cost savings associated with a cost-effective abatement allocation that could be achieved through trading.
 - d. At what price must each tradable permit be set to achieve the cost-effective solution?
3. If society is to sustain a long-term commitment to preserving the earth, there has to be a motivation to do so. The motivation should be consistent with economic incentives. The premise is that economic growth and environmental quality can be reinforcing rather than competing objectives. Explain.
4. Write a short note on the following :
 - a. Command-and-control approach
 - b. Market approach
 - c. Pollution credits
 - d. Montreal protocol
 - e. Free trade versus protectionism
5. Assume that government imposes a 10 unit abatement standard for a region, where both the firms either have to abate the pollution or pay the tax levied by the government. We also assume the tax rate to be \$5. Evaluate the cost-effectiveness of an emission charge across two polluters:
Polluter 1: $MAC_1=2.5A_1$
 $TAC_1=1.25(A_1)^2$
Polluter 2: $MAC_2=0.625A_2$
 $TAC_2=0.3125(A_2)^2$
Calculate the total abatement cost of both the polluters and also the total amount of tax paid by them.