M.A. Examination, 2024
SEMESTER-IV
ECONOMICS
Course: OP-12
(Environment and Resource Economics)

Time: 3 Hours *Questions are of value as indicated in the margin* **Full marks: 40**

Answer ***any four*** questions

1. (a) What is meant by the marginal abatement cost (MAC) schedule of a polluter? How can you derive the aggregate MAC schedule for an economy?
   (b) Using the aggregate MAC and damage cost schedules, determine the optimal emission level of an economy. Justify its 'optimality'. 5+5=10

2. It is claimed that under certain conditions, the socially optimum emission level can be automatically achieved by the polluters and the victims through mutual negotiations. State the conditions and explain how these negotiations might take place by a set of rational agents. 10

3. Explain the working of a tradable pollution permit system for a targeted reduction in emissions. Why it is efficient? What is its advantage over a tax-based emission control system? 6+2+2=10

4. What do you mean by 'user cost' in the context of a non-renewable resource? What is Hotelling Rule? Derive the time path of price for such a resource following Hotelling Rule. 3+2+5=10

5. In the context of fishing in a natural ecosystem, how would you define a unit of 'effort'? Find out the sustainable effort level if the ecosystem is openly accessible for all fishermen. Show that the effort level is less if fishing rights are controlled by a single agency with the objective of profit maximization. 2+4+4=10

6. Consider a single rotation forest stand of homogeneous trees. Discuss how the optimum harvesting time would be affected by:
   (i) An increase in harvesting cost
   (ii) Imposition of a unit tax on timber harvested.
   (iii) An increase in prevailing interest rate 3+2+5=10

7. (a) Describe the various types of ecosystem services with examples.
   (b) Distinguish between 'revealed' and 'stated' preference methods of valuation of ecosystem services. Give examples of one such ecosystem service for which a valuation exercise can be carried out using any of the revealed preference methods. Briefly outline the steps that you would like to carry out for this exercise. 4+6=10

8. Write short notes on *any two* of the following: 5×2=10
   (i) Environmental Kuznets Curve
   (ii) Efficiency condition for a targeted abatement of emission
   (iii) Maximum Sustainable Yield for a renewable natural resource like fish