

**MASTER OF ARTS EXAMINATION, 2018**

( 2nd Year, 3rd Semester )

**ECONOMICS**

**RESOURCES ECONOMICS**

Time : Two hours

Full Marks : 30

Answer any *three*

1. Derive the optimal conditions of extraction of exhaustible resources by a competitive firm. Show that behavior of price overtime depends essentially on the cost structure.

4+6

2. Show that the exhaustion time of exhaustible resource decreases with number of firms in the resource industry, even though firms are identical. Show the impact of an increase in rate of discount, initial reserve and price of backstop on the exhaustion time.

7+3

3. What is a logistic growth function in the context of renewable resource? What is maximum sustainable yield? Show that without human intervention the time path of resource stock is restricted to its carrying capacity.

3+1+6

Or,

Assume that  $N$  identical fishing firms are harvesting fish in an open access fishery and a regulating manager wants to control the fishing firms and make them to act in a socially optimum way.

- a. Write the objective function of the fish manager.
- b. show that the optimum stock is more under cost than without it.

[ Turn over

- c. Show that if the firms are rational (in the sense of realizing the impact of its own action on the valuation of stock), the optimum stock is inversely related to the number of firms in the industry and is equal to socially optimum stock if  $N$  is equal to one. 2+3+5
4. Assume that  $N$  identical fishing firms are operating in a common property fishery like deep sea. Show that under free access market equilibrium there will be overexploitation of common property resources. In what sense such overexploitation may lead to extinction of such resources. 8+2
5. If society invests all rents from exhaustible resources in reproducible capital and consumes the remainder of the product given constant population, the consumption path is a horizontal straight line. In what sense, such a consumption path may be termed as one form of Sustainable Development. 8+2