

MASTER OF ARTS EXAMINATION, 2024

(2nd Year, 1st Semester, Supplementary)

ECONOMICS**[RESOURCE AND ENVIRONMENTAL ECONOMICS-I (LOCAL ISSUES)]**

Time : Two hours

Full Marks : 30

1. Answer any two questions**5x2=10**

(a) Distinguish between weak and strong sustainability. How do Pearce and Atkinson define 'weak sustainability'? 2+3

(b) What are Daly's operational principles for sustainable development? 5

(c) Derive Faustmann's condition to achieve optimum level of net present value of forestry in a single stand one rotation problem. 5

2. Answer any two questions:**10x2=20**

(a) (i) Describe the interlinkage between the economy and the environment.

(ii) Distinguish between stock pollutant and fund pollutant.

(iii) Diagrammatically show a situation where the optimal level of pollution may be zero. 4+4+2

(b) (i) Define compensatory and depensatory logistic growth function.

(ii) Consider following Gompertz function

$$F(X(t)) = r X(t) \log \left(\frac{K}{X(t)} \right)$$

Find the MSY solution and sustained yield curve.

5+5

(c) Consider optimal growth in an economy in which

$$\text{Max} \int_0^{\infty} U(C) e^{-\rho t} dt$$

$$\text{subject to } \dot{K} = F(K, L, X) - C \text{ and } \dot{X} = -bX + \gamma F(K, L, X)$$

Where, C= Aggregate consumption, U(.)= Aggregate utility function, ρ =Social discount rate, K= Stock of produced capital, L= Current labor force, \dot{X} = Net pollution increments, b= Rate of pollution evaporation rate by natural environmental stock regeneration, γ = Parameter linking produced output to increments in pollution.

(i) Find the economic depreciation of environmental capital on the basis of Hartwick Approach.

(ii) Derive 'Environmentally adjusted measure of Net National Product' (ENP) after introducing abatement costs as a debit from the produced composite output. 5+5