



**BSc in Export Agriculture**  
**Third Year First Semester Examination – July/ August 2018**  
**Environment and Resource Economics (EAG 331-3)**

**Section II – Structured Questions**

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**Instructions:**

Answer **all** questions in the given space.

No. of questions : Two (02)

No. of pages : Nine (09)

Time : One (01) hour

Total marks allocated : 20%

Index No.

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01.

(I) What is meant by;

a) Private Good? (5 marks)

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b) Public Good? (5 marks)

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c) Externality? (5 marks)

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d) Property Rights? (5 marks)

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(II) List two (2) major types of externalities giving two (2) examples for each (6 marks)

Types of externality	Examples
	i. ii.
	i. ii.

(III) List four (4) characteristics of property rights (8 marks)

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(IV) What do you mean by internalizing the externalities? (5 marks)

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(V) List two (2) government solutions to externalities. (4 marks)

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(VI) List four (4) private solutions to externalities (8 marks)

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(VII) Why don't private solutions always work? (3 marks)

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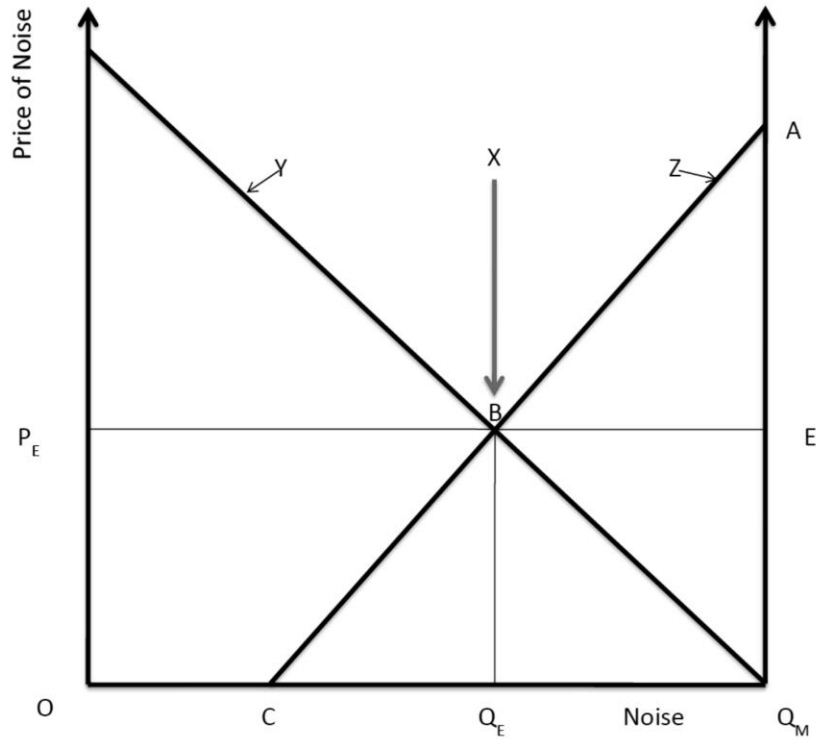
(VIII) The effectiveness of private parties in dealing with externalities is explained by the Coase Theorem.

a) State the Coase Theorem (5 marks)

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b) Assume that there are two people namely a stereo owner and a neighbor. The stereo owner likes to increase his volume unit by unit. The situation of the stereo owner and the neighbor is graphically analyzed and shown in the following figure.





i. Identify X, Y, Z,  $Q_E$  and  $P_E$  in the figure itself. (5 marks)

ii. Who faces the externality? (2 marks)

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 .....

iii. What type of an externality does he face? (2 marks)

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iv. Until which point does the stereo owner increase the volume? (2 marks)

.....

**For the following questions you need to identify the relevant area of the figure where necessary**

v. At the point mentioned in (iv), what is the benefit or cost to the stereo owner and the neighbor? (8 marks)

	Benefit/ Cost	Area
Stereo owner		
Neighbor		

vi. As a result of the situation mentioned in (v), the two persons come to an agreement as it creates a problem to one person. What is this agreement? (5 marks)

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vii. Based on the agreement, do both of them get benefited? (2 marks)

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viii. Fill in the following table based on the above agreement (8 marks)

	Costs		Benefits	
	Before agreement	After agreement	Before agreement	After agreement
Stereo owner				
Neighbor				

ix. What is the total benefit to the society? (2 marks)

x. What is your conclusion with regard to the above agreement? (5 marks)

02.

(I) Define the term Fishery (10 marks)

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(II) List four (04) factors which determine fish biomass (10 marks)

- a) .....
- b) .....
- c) .....
- d) .....

(III) Fish stock can be increased with time if; (5 marks)

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(IV) List four (04) special characteristics of fishery resources (10 marks)

- a) .....
- b) .....
- c) .....
- d) .....

(V) Graphically show the relationship between fish stock & growth rate when there is no harvesting (10 marks)

(VI) What is meant by

a) Sustainable Yield? (5 marks)

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b) Maximum Sustainable Yield? (5 marks)

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c) Maximum Economic Yield? (5 marks)

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(VII) Periodic change in stock size with harvest can be represented as

$$x_{(t + 1)} = x_t + G(x_t) - Harvest_{(t)}$$

Identify the following terms in the equation (5 marks X 4)

a)  $x_{(t + 1)}$  - .....

b)  $x_t$  - .....

c)  $G(x_t)$  - .....

d) When will the stock reach the equilibrium?

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(VIII) Why doesn't fishery production obey in economic law of diminishing marginal productivity? (10 marks)

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(IX) Consider the two equations given below

$$\text{Population Equilibrium Equation (PEC)} = x_t = K - \left(\frac{qK}{r}\right)E_t$$

$$\text{Short Run Yield Equation} = Y_t = qx_tE_t$$

- a) Derive the sustainable yield equation based on the above equations and identify the terms in the derived equation (5 marks)

- b) If the price of fish is P and cost per unit effort is  $C_E$  derive the total sustainable revenue function and total cost function (5 marks)

**[End of Section II]**