Course

on

HS205: consumer Behaviour and Welfare Economics

3rd semester

2020

Instructor

Dr. Hari K. Choudhury
Assistant Professor of Economics
Indian Institute of Information Technology Guwahati – 781 001

Lecture 12 Elasticity of Demand and Elasticity of Supply

Elasticity of demand: Meaning

Elasticity of demand can be defined as the proportionate or percentage change in the quantity demand as a result of a proportionate or % change in its price, income or prices of other goods

Different types of elasticity

1. Price elasticity of demand
2. Income elasticity of demand
3. Cross elasticity of demand

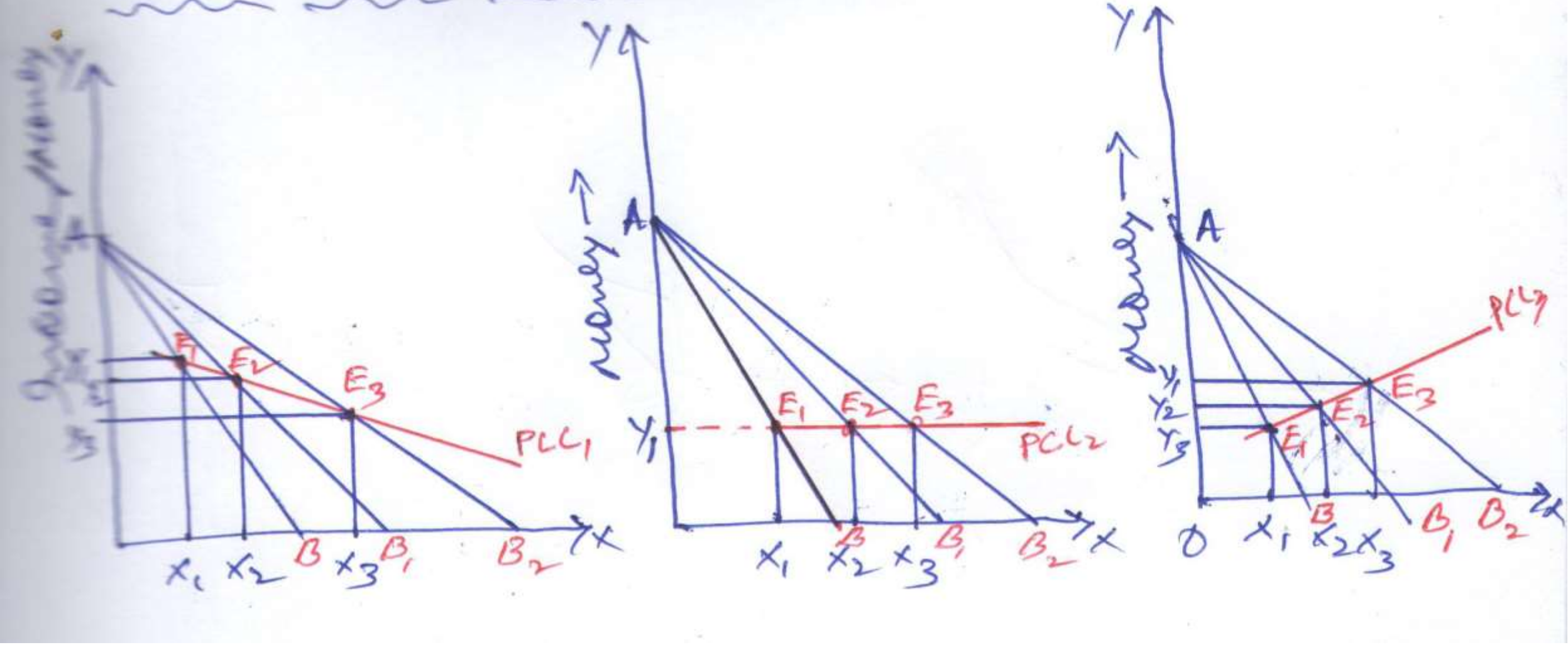
Elasticity of demand

1. $E_p = \dfrac{\%\,\Delta \text{ in demand}}{\%\,\Delta \text{ in price}} = \dfrac{\frac{\Delta Q}{Q} \times 100\%}{\frac{\Delta P}{P} \times 100\%} = \dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q} = \dfrac{dQ}{dP} \times \dfrac{P}{Q}$

2. $E_y = \dfrac{dQ}{dy} \dfrac{y}{Q}$

3. $E_{xy} = \dfrac{\%\,\Delta \text{ in demand}x}{\%\,\Delta \text{ in price}y} = \dfrac{\frac{\Delta Q_x}{Q_x} \times 100\%}{\frac{\Delta P_y}{P_y} \times 100} = \dfrac{\Delta Q_x}{\Delta P_y} \dfrac{P_y}{Q_x} = \dfrac{dQ_x}{dP_y} \dfrac{P_y}{Q_x}$

Price elasticity & price consumption curve



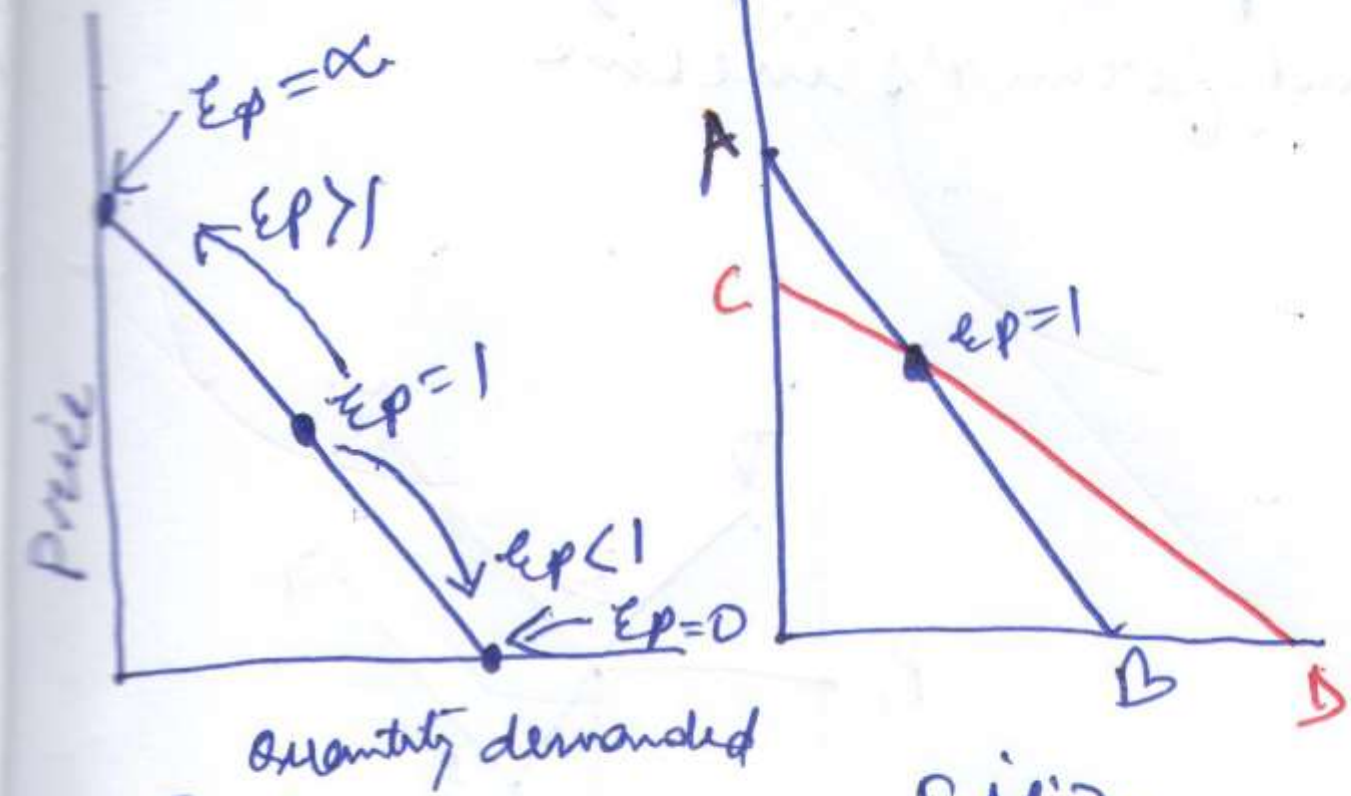


Fig 1

Fig. 2

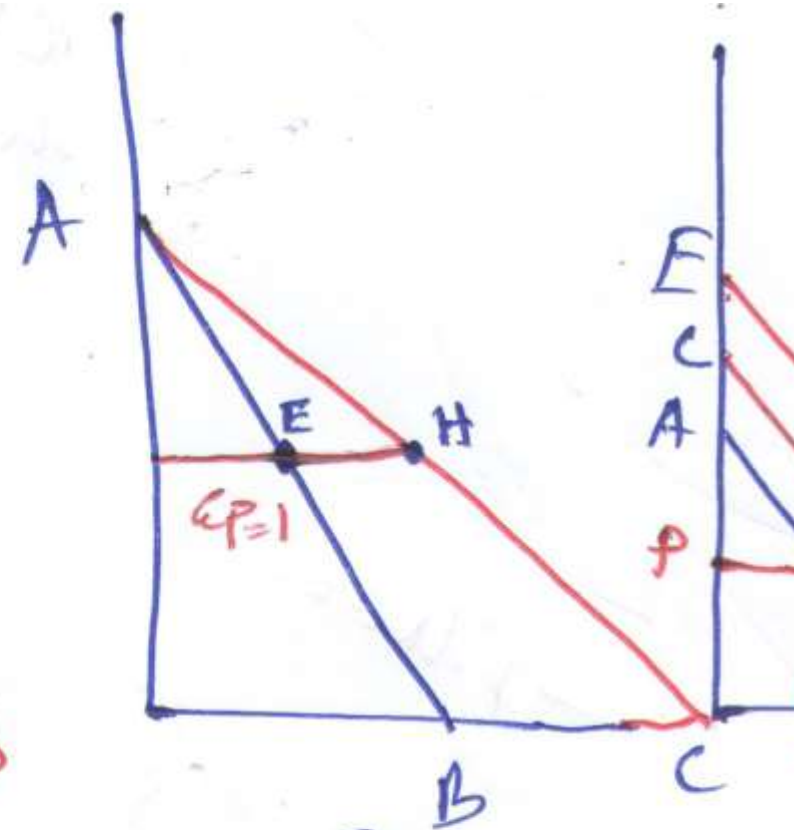


Fig. 3

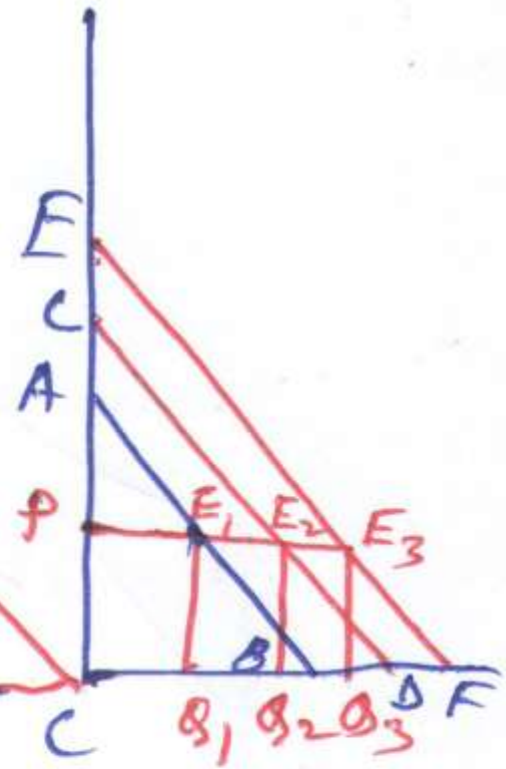
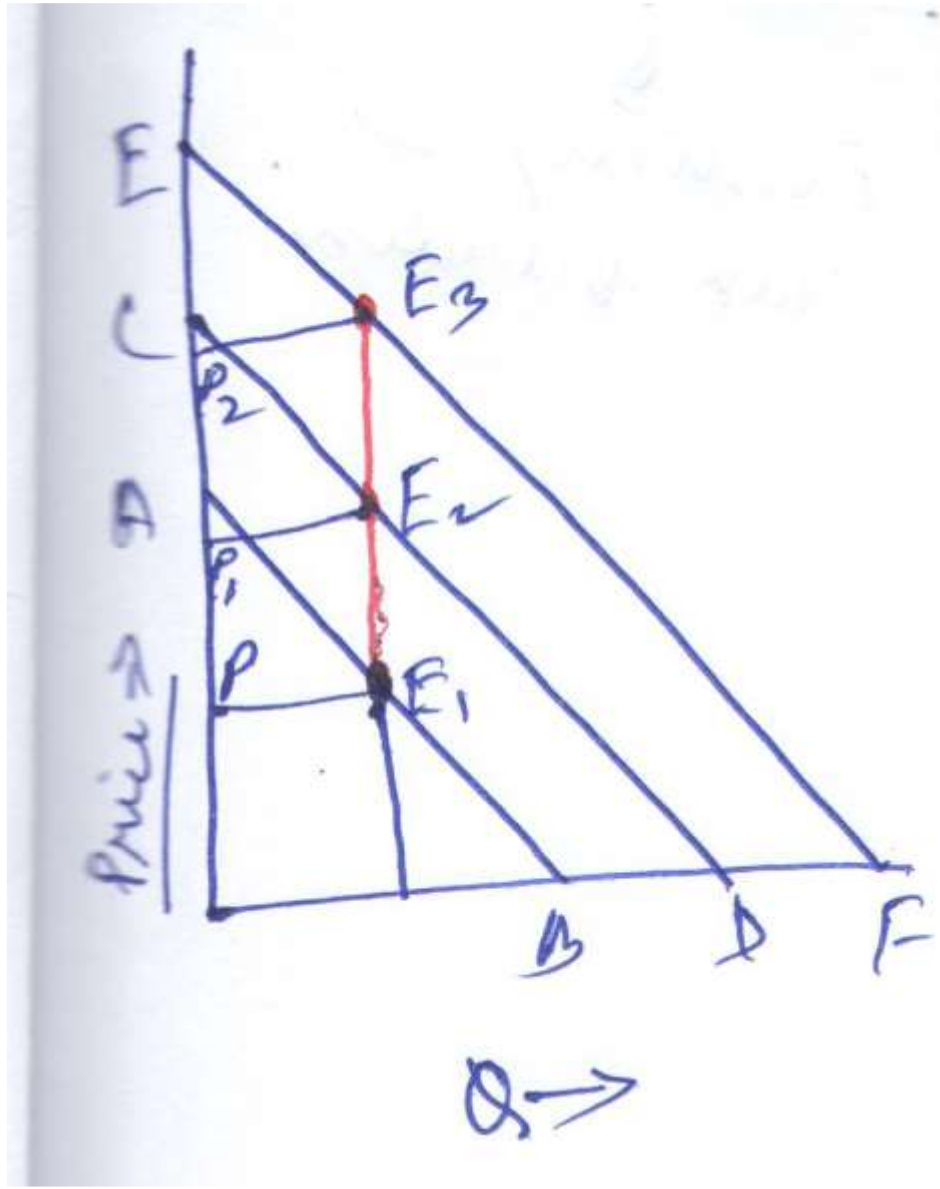
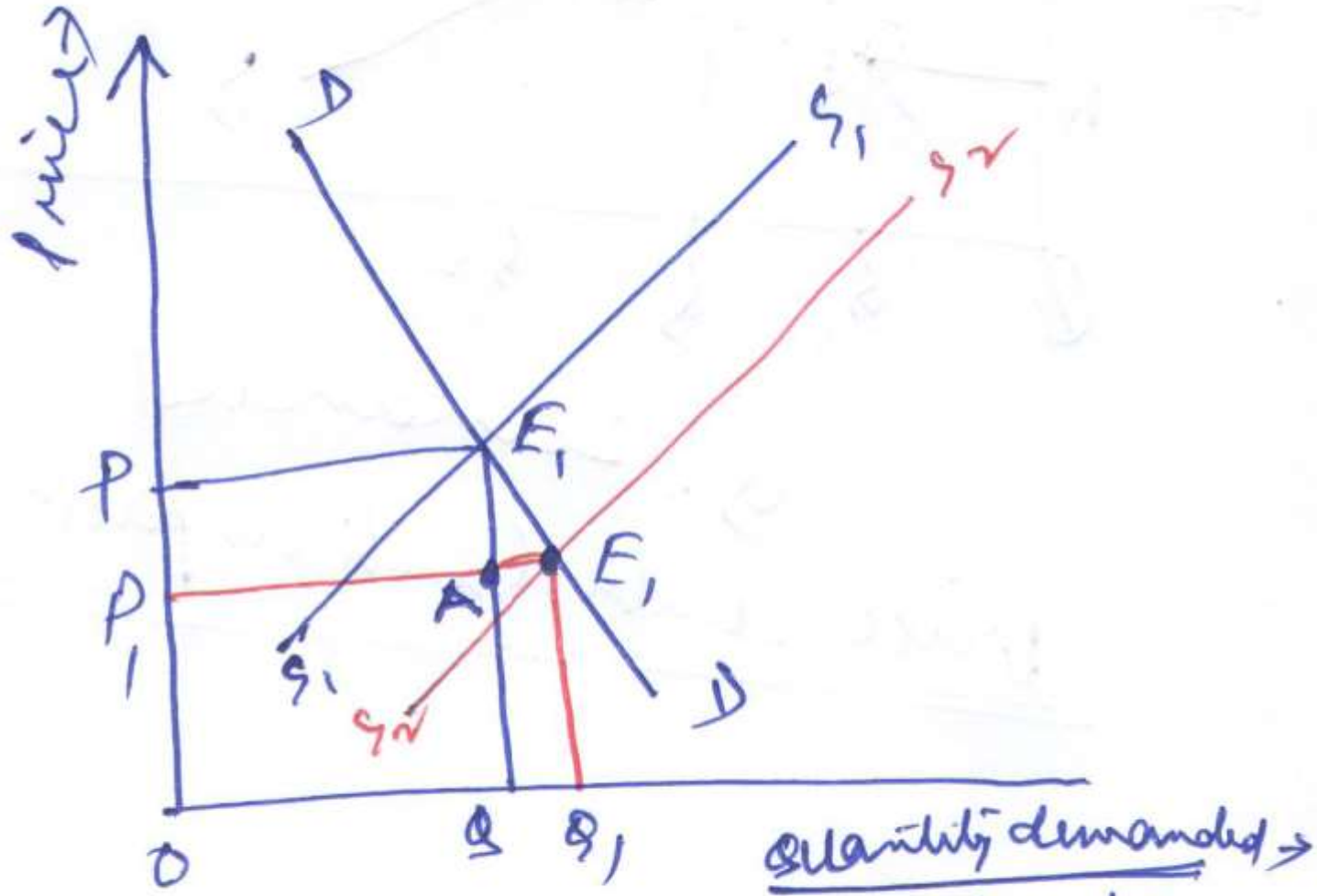
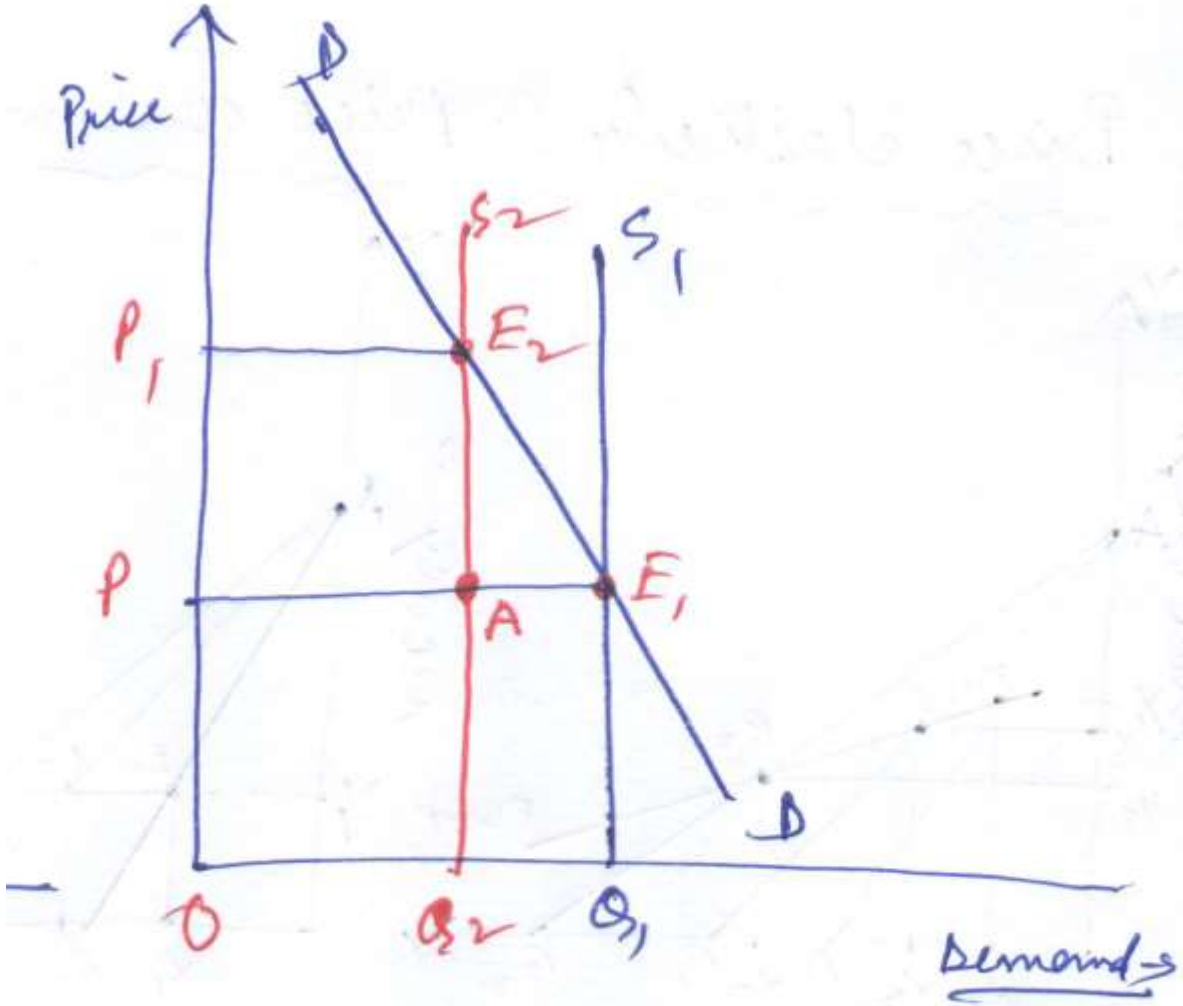


Fig. 4

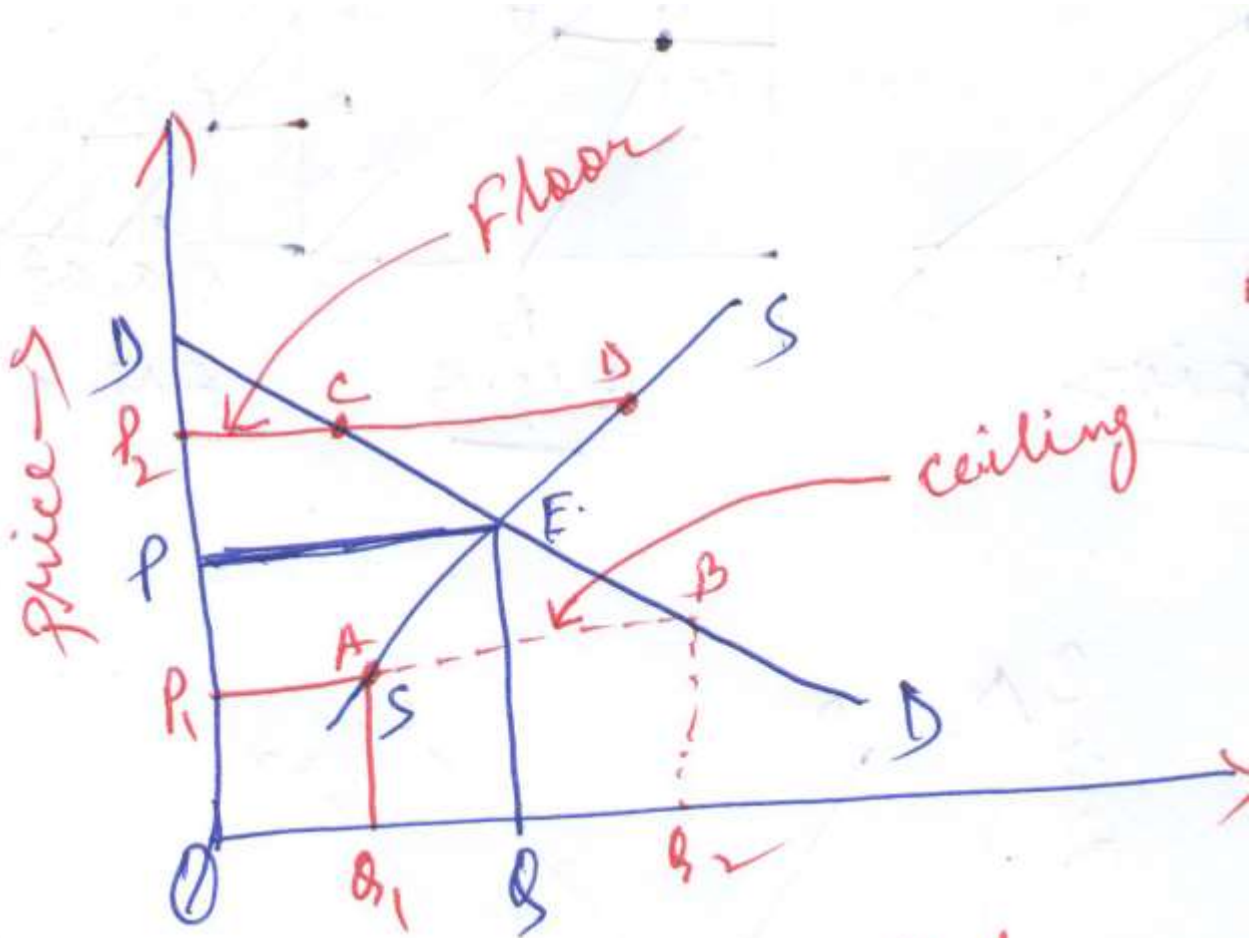

E
C
A
P
Price
E_3
E_2
E_1
P_2
P_1
B
D
F
Q



Paradox of poverty amidst plenty

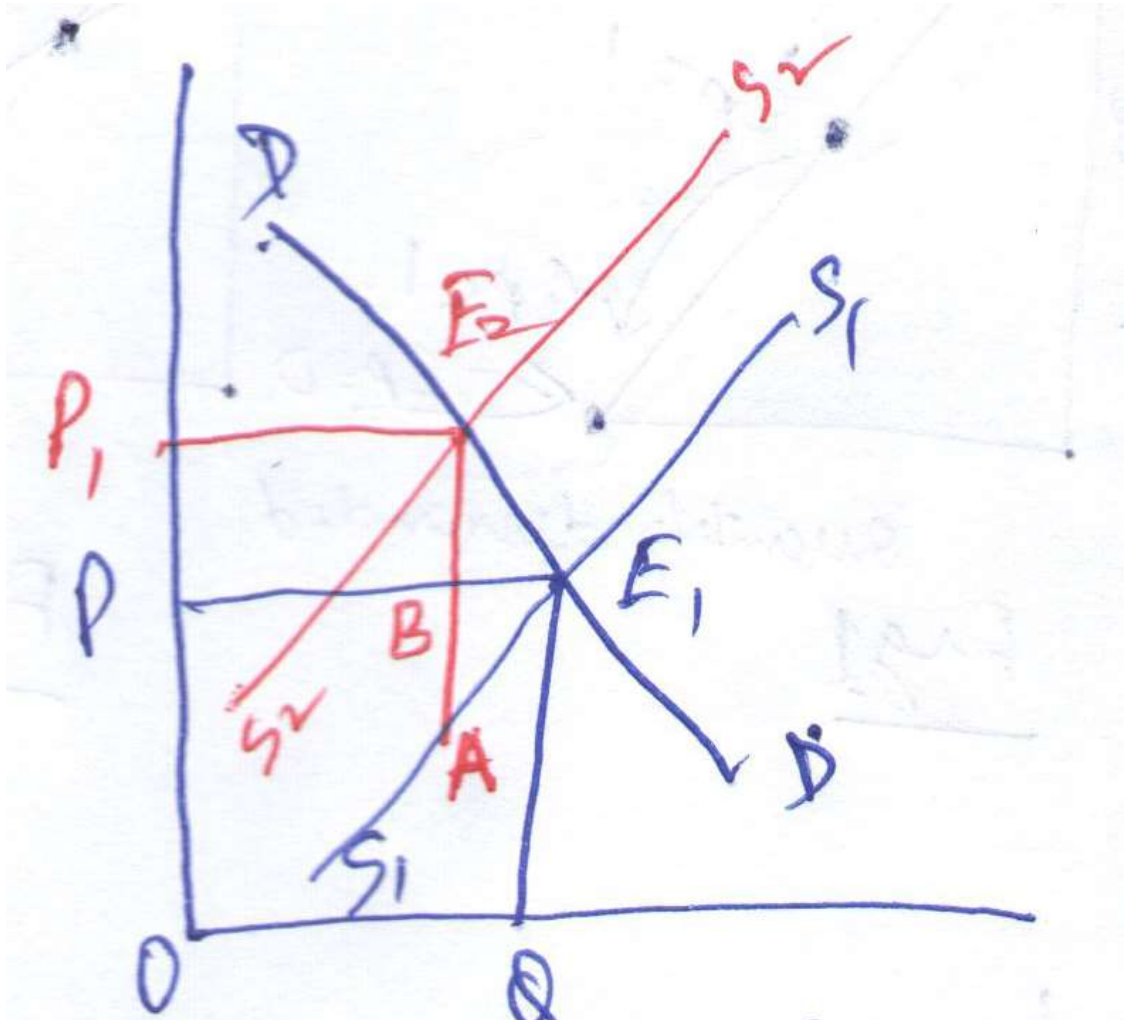


Crop restriction program and farmer's income



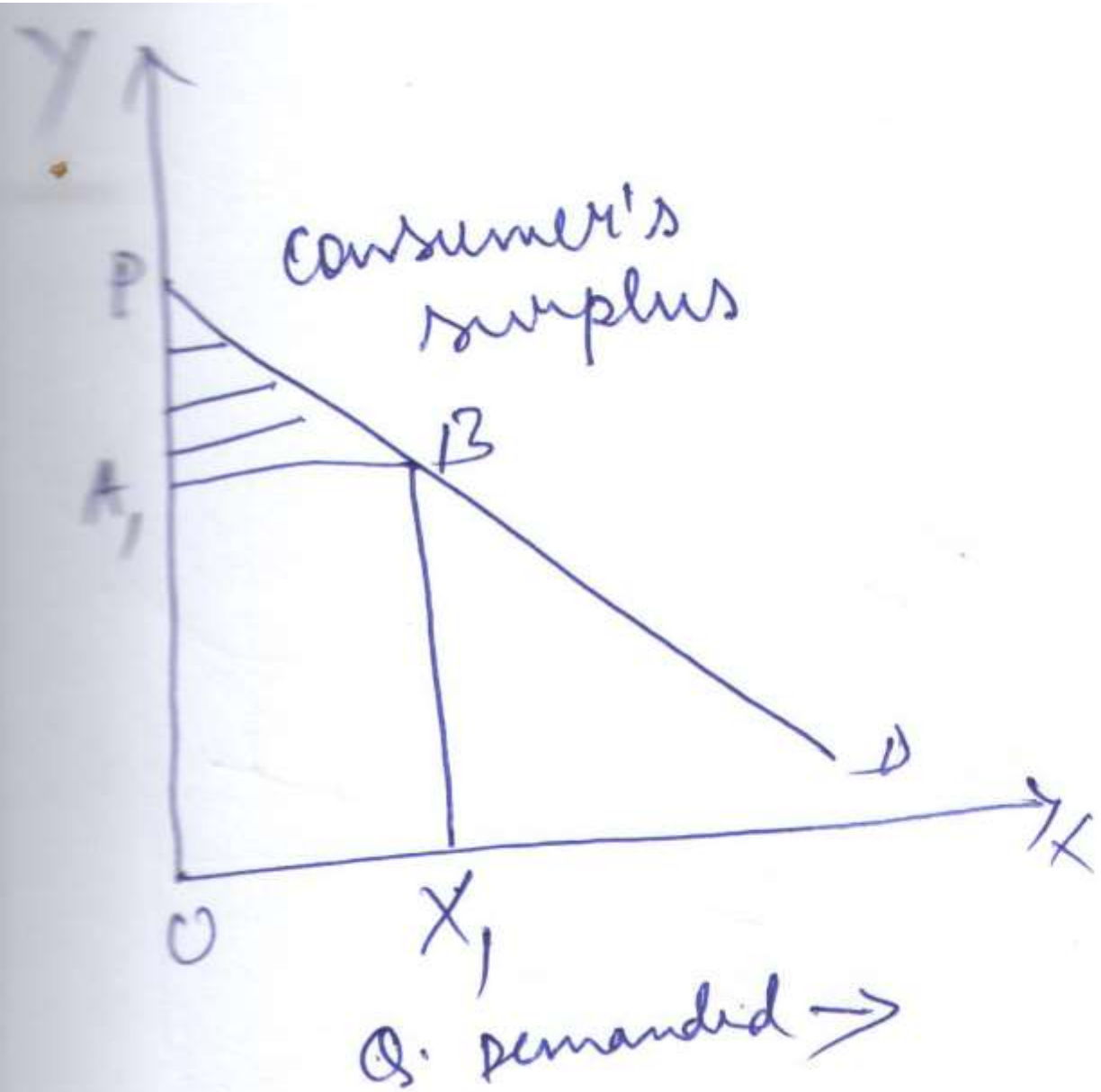
Q. Demanded

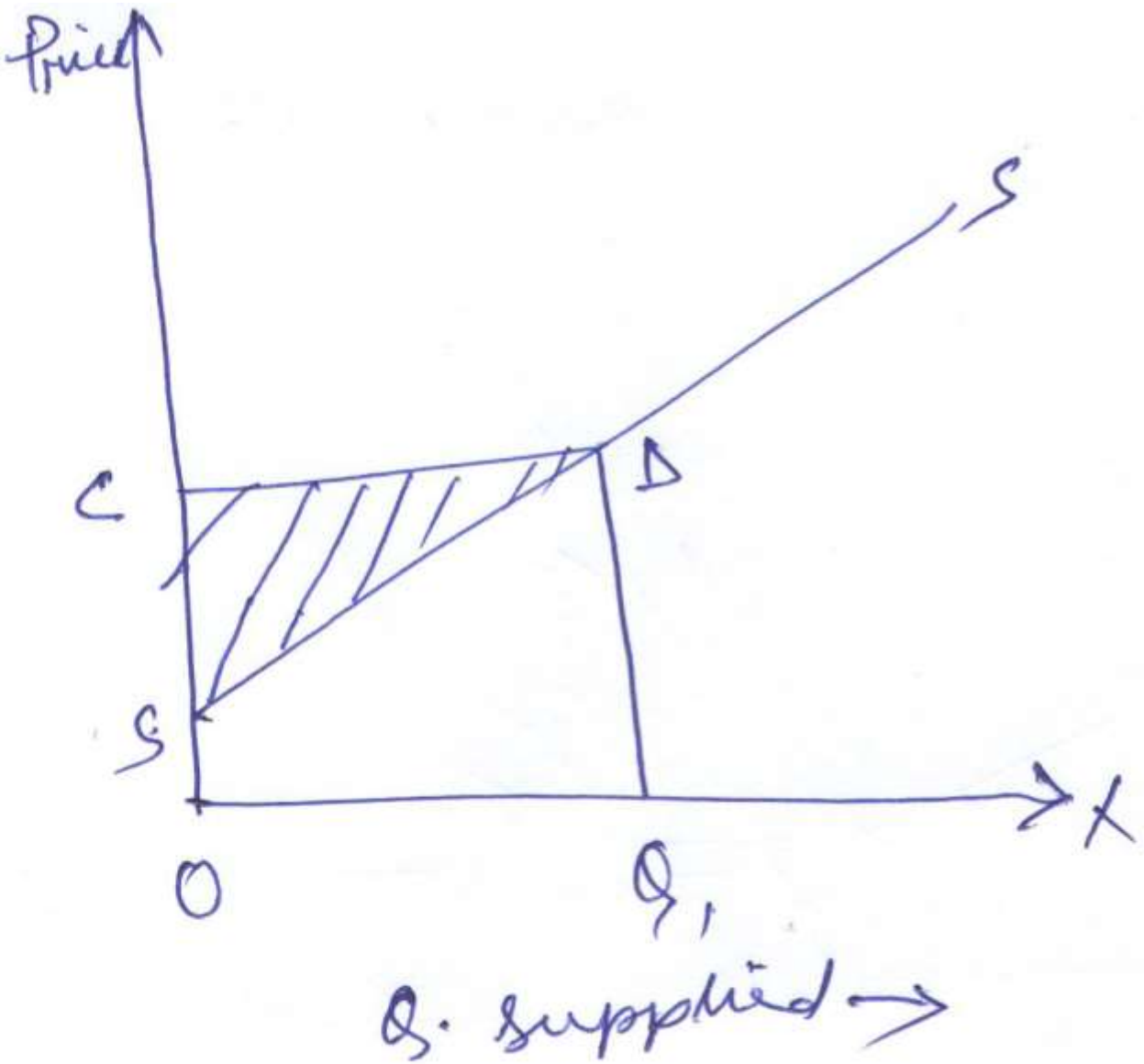
Price control & its impact



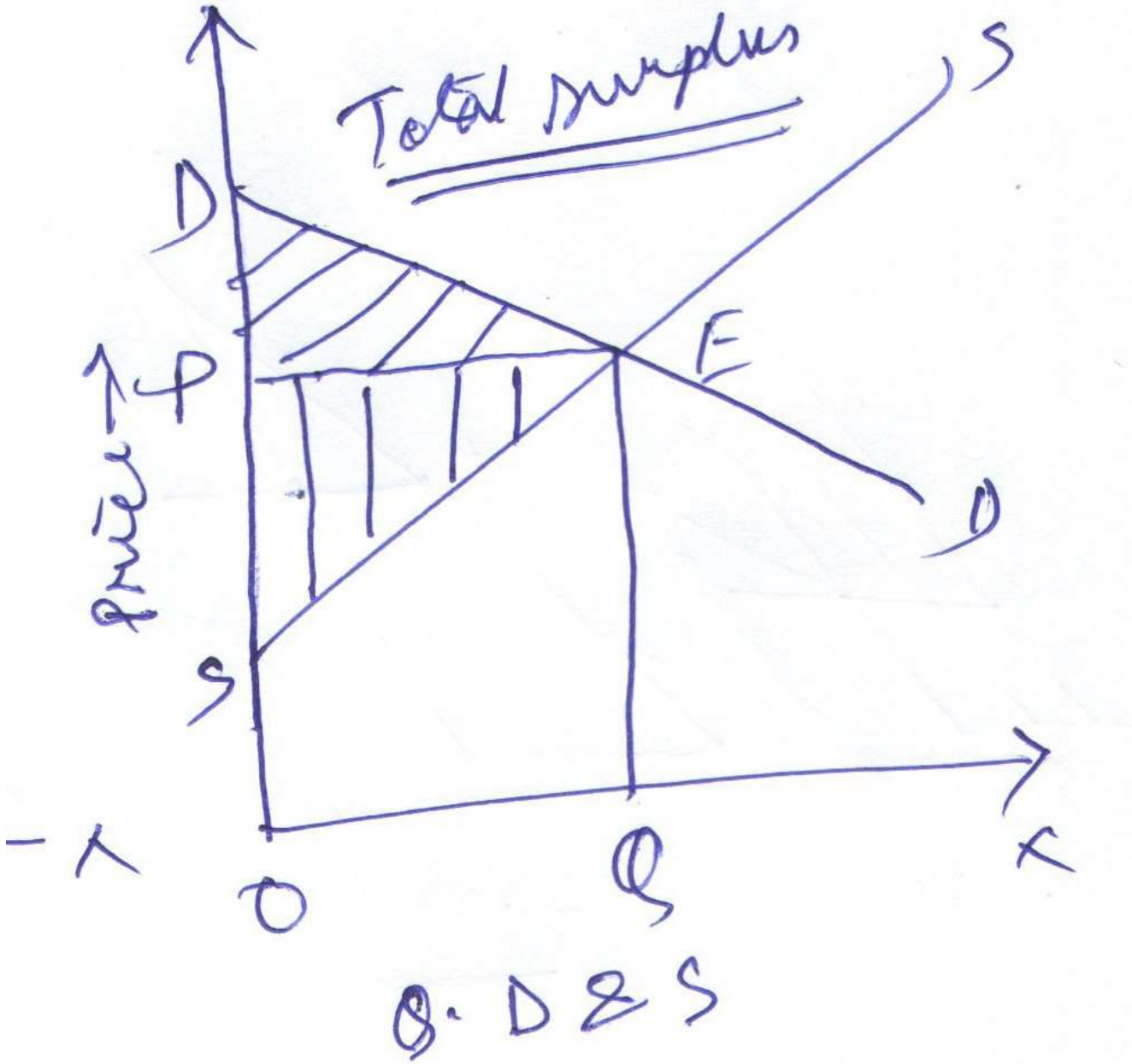
Elasticity &
Tax burden

Consumer's surplus and Producer's Surplus





Total Surplus: Allocative efficiency



Problem 1:

The demand function is given as:

$Q = f(P) = 10 - \frac{1}{3}P$, where P is price & Q is quantity.

Find out the consumer's surplus when Price is 15/unit.

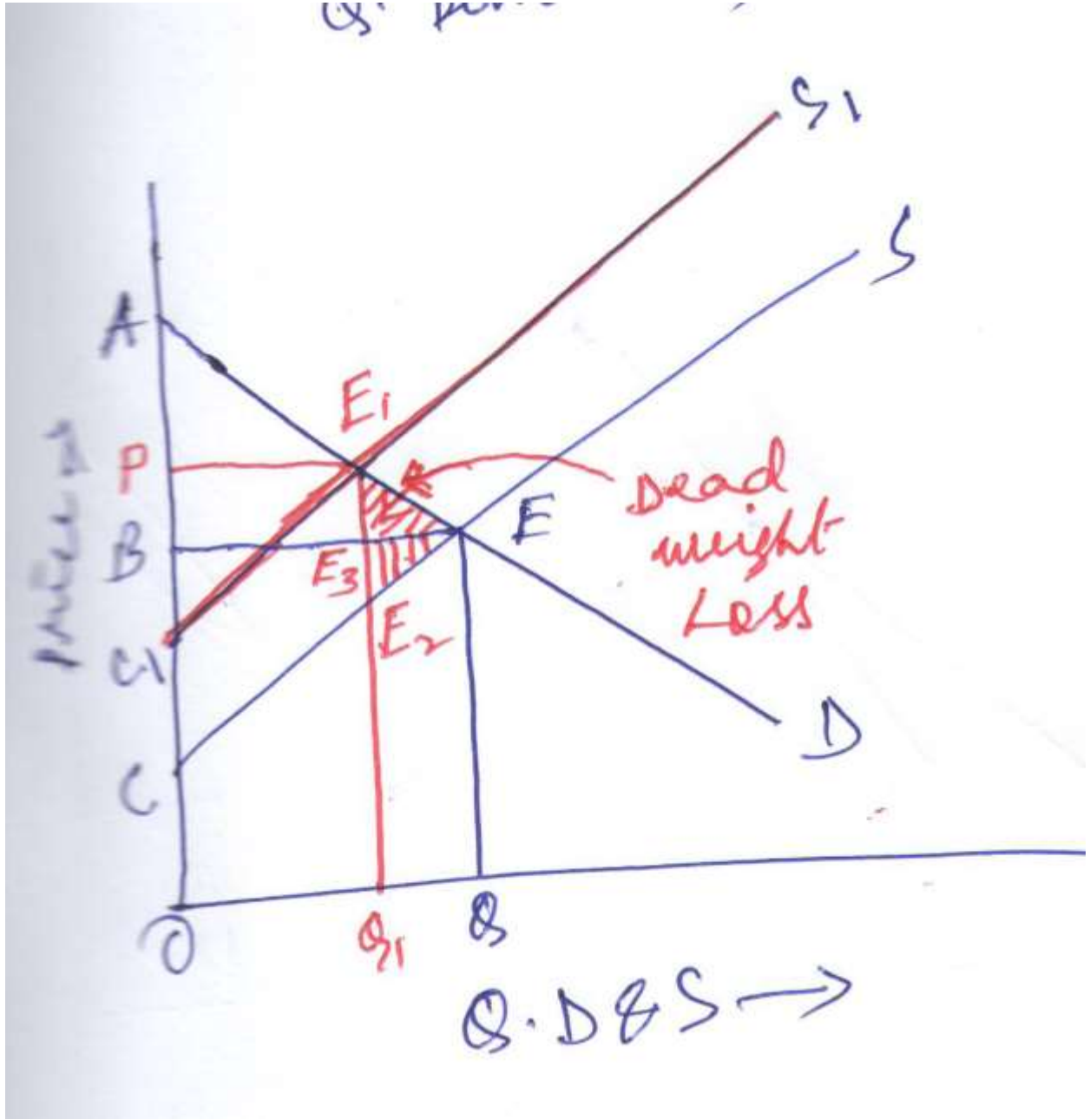
Problem 2:

The supply function of a producer is given by

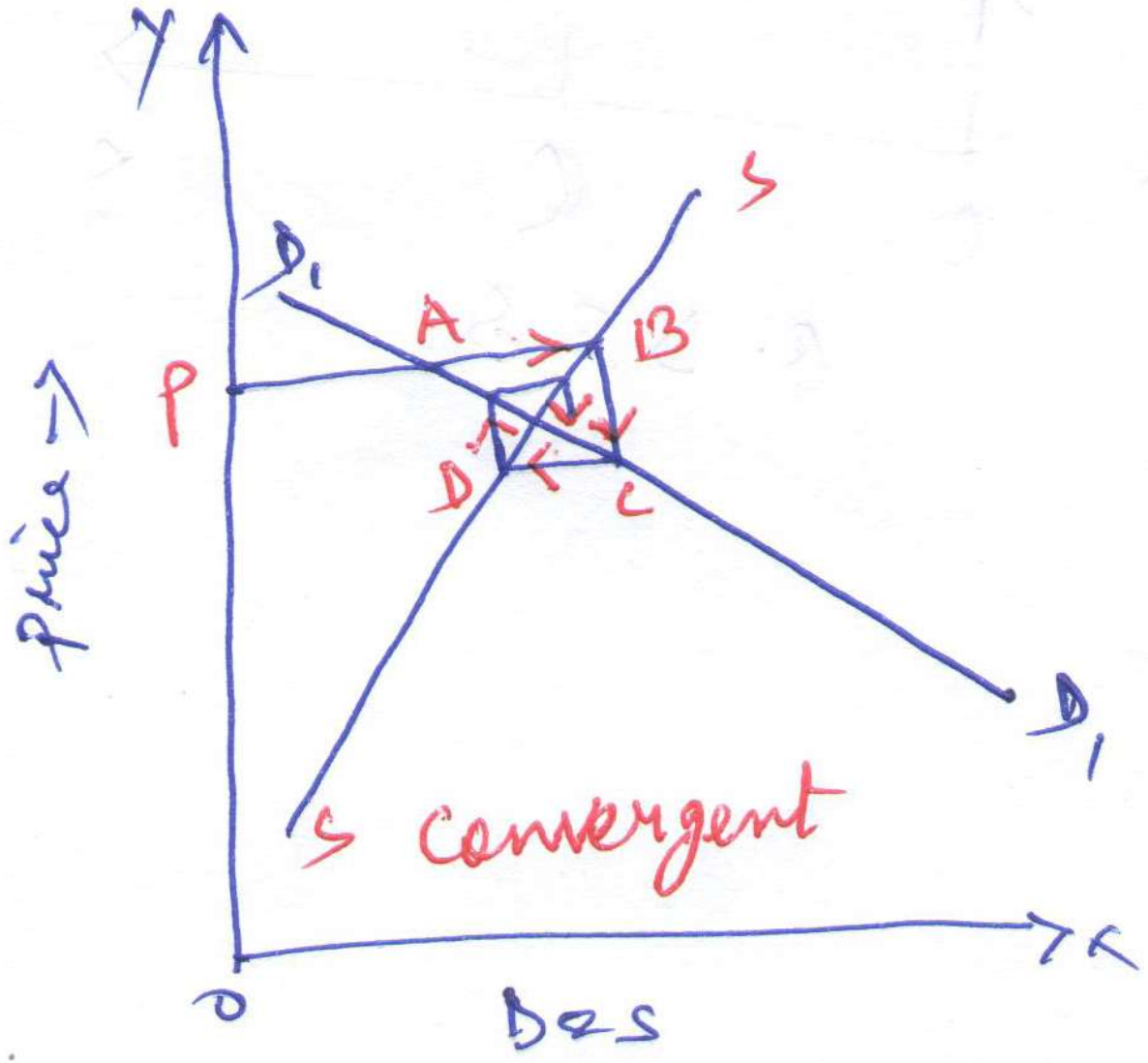
$Q = f(P) = -2 + \frac{1}{3}P$;

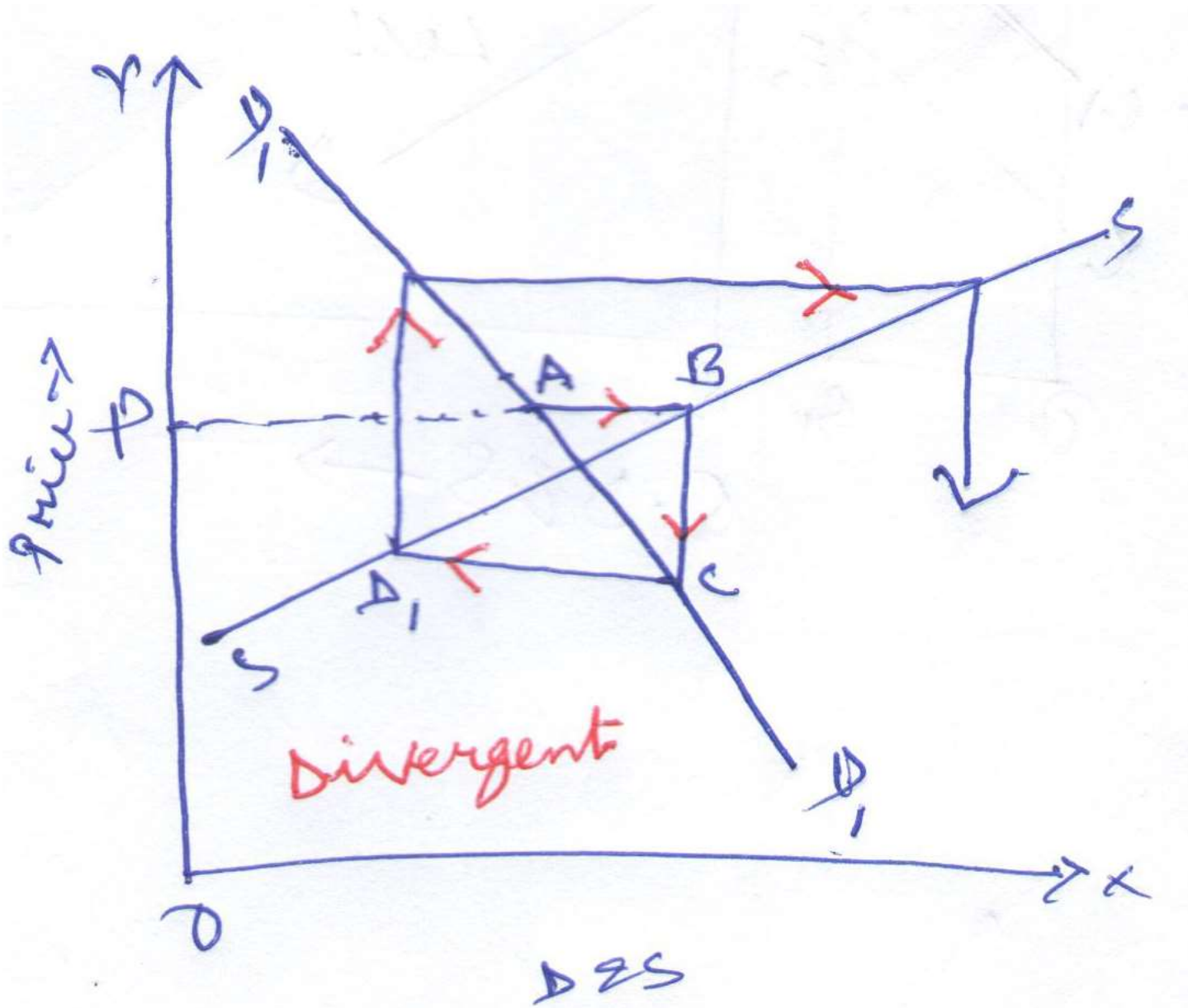
calculate producer's surplus when P = Rs 20/unit

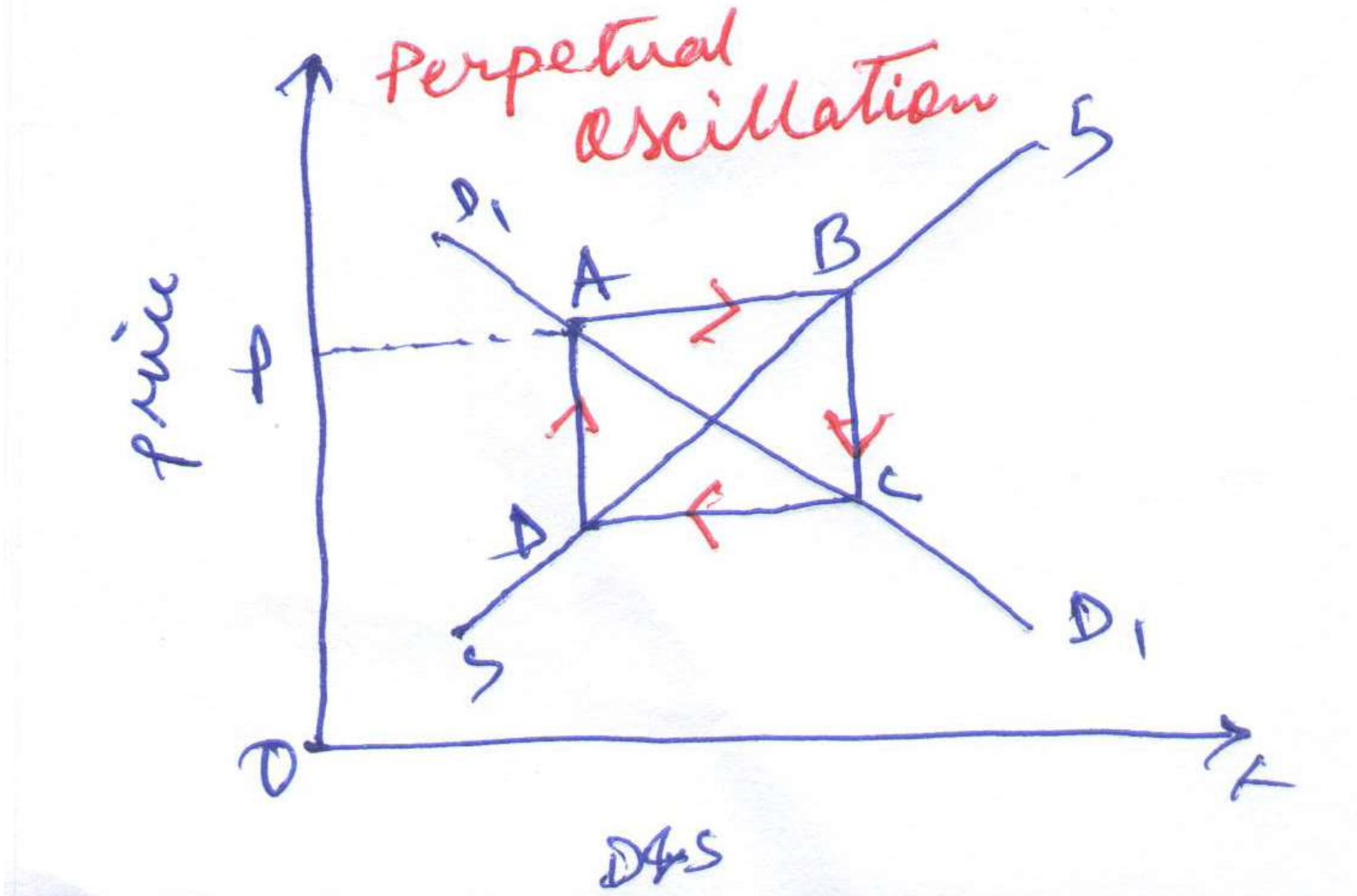
Dead Weight Loss: Allocative Inefficiency



Cobweb theorem: Convergent, Divergent, and Perpetual Oscillation




Y
D1
S
Price
P
A
B
D
C
D1
S
Divergent
D1
O
X
D ES


Perpetual oscillation
price
D1
A
B
S
D
C
S
D1
O
T
D4S