1) (each blank is worth 1 point, 6 points total)

Assume demand and supply can be represented by the following equations:

Qd= 1000 – 4P

Qs= -200 + 2P

i) Calculate the following:

P\*=**200**

Q\*=**200**

Consumer Surplus=**5000**

Producer Surplus=**10000**

ii) Now assume a price floor of $220 is imposed. Calculate the following with the price floor:

Consumer Surplus=**1800**

Producer Surplus=**10800**

2) Assume demand and supply can be represented by the following:

P= 60 – 2Qd

P =20 +4 Qs

The government imposes a $3 specific tax on the good. Calculate the following under the tax: (each blank worth 1.5 points, 6 points total)

Consumer Surplus = **38.04**

Producer Surplus = **76.1**

Tax Revenue Collected = **18.5**

Deadweight Loss = **0.75**

3) Recall that we can categorize goods as, private goods, public goods, common recourses, or natural monopolies. Next to each item, say which of the four categories fits best. (1 point each, 4 points total). (And just for clarification, it is not necessarily the case that each of the four possibilities mentioned above will be used.)

Police protection: **Public good**

A streetlight: **Public Good**

A new pair of ice skates: **Private good**

Blackberries that grow on a bush in a public park: **Common resource**

4) (6 points total)

Consider the market for fire extinguishers.

i) Why might fire extinguishers exhibit positive externalities? (1 point)

**Me being able to stop a fire in my house could prevent yours from getting burned down.**

ii) Draw (or very clearly describe) a graph of the market for fire extinguishers labeling the demand curve and the social value curve (if different), as well as the supply curve and the social cost curve (if different). (2 points)

**The social demand curve will be the right of the private demand curve. See lecture for more detail.**

iii) Indicate the market equilibrium level of output and the efficient level of output. Give an intuitive explanation for why these quantities differ. {If you are having trouble drawing things in Word, that’s ok, just try to describe in words the important part from your graph)(2 points)

**The socially optimal level will be greater than the amount provided by the mkt. This is b/c the decision maker doesn’t take into account the spillover effect of his/her actions and thus the combined MB of a marginal fire extinguisher will be lower than the private benefit.**

iv) If the external benefit is 10 euros per extinguisher, describe the government policy that would result in the efficient outcome. (1 point)

**A 10 Euro subsidy.**

5) The diagram below illustrates the costs and marginal revenue for a firm in a perfectly competitive market. (6 points total)



Based on the above, calculate:

i) Total Revenue at the profit maximizing level of output: (2 points**)\_\_\_\_$6000**\_\_\_\_\_\_\_\_\_\_\_\_\_

ii) Total Costs at the profit maximizing level of output: (2 points)\_\_\_$**3300**\_\_\_\_\_\_\_\_\_\_\_\_

iii) Based on the above, you either found that the firm was operating at a profit or a loss. Do you think the result you found (profit or loss) will persist indefinitely? (In other words, if you found that the firm was earning a profit, do you think it will continue to do so into the future? If you found that it is suffering a loss, do you think this will persist?) Explain your reasoning. (2 points)

**Profit for now, but one assumption of the perf comp model is no barriers to entry. If there are profits to be had, new entrants will enter and erode them over time. So I do not think this will persist.**

6) (4 points total)

The demand for a monopolist’s product can be represented by

P= 100 – 4Qd

And the marginal cost of production can be represented by

MC= .25Q

Calculate the following:

Profit maximizing monopoly quantity: (2 points) \_\_\_**12.12 units**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Profit maximizing monopoly price: (2 points**)\_\_\_\_\_$51.52**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7)

ii) Consider the following one-shot, simultaneous move game. Assume the payoffs are good things (like euros), not bad things (like years in prison).

Player 1 Player 2 →

↓

|  |  |  |  |
| --- | --- | --- | --- |
|  | Red | Green | Yellow |
| Red | 50,100 | 350,20 | 300,300 |
| Blue | 100,500 | 20,50 | 30,250 |
| Green | 150,75 | 100,100 | 100,200 |

Does this game have any Nash Equilibria? If so, what are they (or what is it)? (4 points)

**Yes, Red/Yellow**