1. What is the free market equilibrium quantity? Why?

Free market equilibrium quantity (Qm) is the quantity produced by the market at MPC = MPB. If the quantity produced is higher than Qm, then MPC > MPB, meaning that there will be more cost than benefit; if the quantity produced is less than Qm, then MPC < PMB, so there will be more potential benefits if quantity produced increases. Thus, in either case, the quantity produced has to be at Qm, where MPC = MPB.

1. What is the quantity desired by society? Why?

Quantity desired by society (Qs) is the quantity at MSC = MSB. If the quantity is higher than Qs, then MSC > MSB, meaning that there will be more cost than benefit; if the quantity is less than Qs, then MSC < PSB, so there will be more potential benefits if quantity increases. Thus, in either case, the quantity has to be at Qs, where MSC = MSB.

1. An example and explanation.

An example of this is the overproduction of Marijuana in Oregon. The quantity produced by free market (Qm) is three times more than quantity desired by the society (Qs), so there will be great negative externalities and because MSC = MPC + MEC, so MSC >> MSB, leading to market failure. Thus, the police have to take actions and tackle with that crisis to reduce the production of marijuana, and hence achieve the equilibrium of the society where MSC = MSB.