3. For special occasions some people purchase and set off fireworks in their backyards. Assume the market for fireworks is perfectly competitive.

   (a) Draw a correctly labeled graph of the market for fireworks and show the market equilibrium price and quantity, labeled P_E and Q_E.

   (b) Assume that the noise from the fireworks disturbs all of the neighbors. On your graph in part (a), show each of the following.

     (i) The marginal social cost curve, labeled MSC

     (ii) The marginal social benefit curve, labeled MSB

     (iii) The deadweight loss, if any, shaded completely

   (c) Now instead assume that all of the neighbors enjoy watching the fireworks.

     (i) In this case, is the market equilibrium quantity of fireworks greater than, less than, or equal to the socially optimal quantity? Explain.

     (ii) In this case, if the government bans fireworks, will the deadweight loss increase, decrease, or remain unchanged?
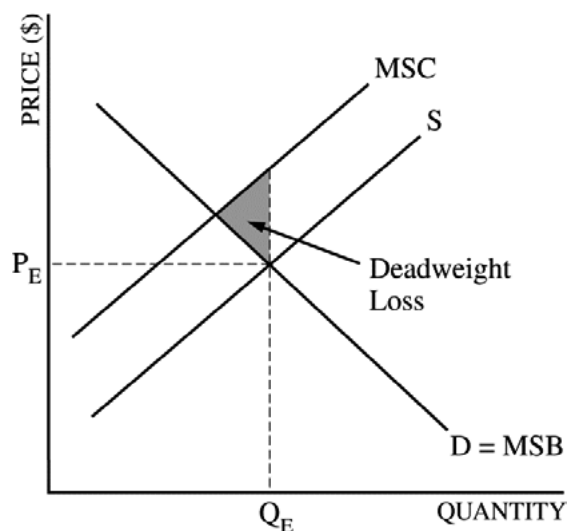
STOP

END OF EXAM

Question 3

6 points (1 + 3 + 2)

(a) 1 point:
- One point is earned for drawing a correctly labeled supply and demand graph with P_E and Q_E labeled.

(b) 3 points
- One point is earned for drawing the MSC curve above the supply curve.
- One point is earned for labeling the demand curve MSB.
- One point is earned for shading the correct area of the deadweight loss.

(c) 2 points:
- One point is earned for stating that the market equilibrium quantity is less than the socially optimal quantity because the fireworks generate a positive externality or provide an external benefit to third parties.
- One point is earned for stating that the deadweight loss will increase.