Assignment 3

Due in tutorials in the week of November 23^{rd}.

Each question is worth 5 marks, 20 marks in total.

1. Firm's supply curve is part of MC curve above the minimum of average total cost: it does not make sense to produce if total revenue is less than total cost and firm will make a loss. Is this statement true or false? Provide full explanation and use a diagram to support your answer.

2. Do **Problem 2 from Ch. 10** of the required textbook. Show results of part (b) on diagram and comment whether the quota results in welfare loss.

3. ***Market A:*** demand curve is perfectly elastic and supply curve is upward sloping.
   Market B: supply curve is perfectly inelastic and demand curve is downward sloping.
   Compare impact of a 1 dollar per unit tax levied on producers in these 2 markets. In particular:

   – Draw two diagrams representing the two markets. Show competitive equilibrium (Q^* and P^*). Show after tax price and quantity (P_t and Q_t) on your diagrams. *(1 mark)*

   – Show on the diagrams and compare the tax burden on consumers and producers and deadweight loss in these two markets. *(2 marks)*

   – Explain why after tax outcomes are different. *(2 marks)*

4. Consider a competitive market with demand given by $P = 120 - Q$ and supply given by $P = .5Q$.

   a) Find competitive equilibrium price and quantity P^* and Q^*. What are the consumer and producer surplus?

   b) Suppose government introduces a unit tax of $t = 15$ on producers. Find the quantity traded in the market after tax Q_t. Find the price paid by consumers P_t and price received by producers after tax P_S.

   c) Calculate consumer and producer surplus, tax paid by consumers, tax paid by producers, and the total tax revenue to the government, find the deadweight loss associated with the tax.

   d) Calculate price elasticity of demand and supply in the competitive market equilibrium using point elasticity formula. Now calculate what percentage of tax revenue is paid by the consumers and what percentage is paid by the producers. What can you say about the relationship between the elasticity of supply and demand and the shares of tax paid by consumers and producers?

   e) Show your results on a diagram. In particular indicate competitive equilibrium, after tax quantity and prices, after tax consumer and producer surplus, government revenue and the deadweight loss.