Please answer the following questions in the space provided.

1) What happens in a duopoly if both firms try to act as the Stackelberg leader? (5 points)

2) Suppose the demand for Pepsi is $Q_P = 54 - 2P_P + 1P_C$. The demand for Coke is $Q_C = 54 - 2P_C + 1P_P$. Each firm faces a constant marginal cost of zero. Determine the Bertrand equilibrium prices. What happens to the Bertrand equilibrium prices and profits if increased differentiation causes the demand for Pepsi to become $Q_P = 104 - 2P_P + 1P_C$ while the demand for Coke remains unchanged? (5 points)
3) A weapons producer sells guns to two countries that are at war with each other. The guns can be produced at a constant marginal cost of $10. The demand for guns from the two countries can be represented as:

\[ Q_A = 100 - 2p \]
\[ Q_B = 80 - 4p \]

Why is the weapons producer able to price discriminate? What price will it charge to each country? What determines the relative price differential? (5 points)

4) Suppose all individuals are identical, and their monthly demand for Internet access from a certain leading provider can be represented as \[ p = 5 - \frac{1}{2}q \] where \( p \) is price in $ per hour and \( q \) is hours per month. The firm faces a constant marginal cost of $1. Calculate the i) fixed fee ii) per unit fee iii) quantity purchased and iv) firm’s profits resulting from a profit maximizing two part tariff pricing scheme. (5 points)
5) Compare and contrast the long run equilibrium of Perfect Competition and Monopolistic Competition in terms of their efficiency and welfare consequences. (10 points)