Part C. Synthesis Question. (15 points)

7. Explain, in words, what are the fundamental differences between perfect competition, Cournot competition, and Bertrand competition. Discuss in terms of both their initial assumptions and their equilibrium properties. (Clarity, brevity, and completeness, when simultaneously present, are solid signs of good comprehension.)

Part D. Problems.

8 (20 points) Entry Costs and Market Structure

Suppose that each firm in an industry has a total cost curve given by $C = F + cq$, where F is a fixed cost, c is a constant marginal cost, and q is the output of one firm. The demand curve facing this industry is given by $Q = (a - P)S$, where P is the price of the good produced, a is the zero-demand intercept parameter and S is a measure of market size. (For a given price, doubling the value of S implies that the demand is twice as large.) Firms compete in a Cournot-Nash fashion.

1. Derive the reaction function of firm i with respect to the total output of the $n - 1$ other firms (q_{-i}).
2. Find the per-firm symmetric Cournot-Nash equilibrium profit level for a fixed number n of firms.
3. Find the free-entry equilibrium number of firms, that is, the one for which firm profits are zero. (To simplify, assume that n can take any real value.) What is the effect of doubling the market size on the equilibrium number of firms? Interpret.
4. According to your results, are consumers better off in a small or a large country? Explain.

9 (15 points)

The cost function is $c(w_1, w_2, y) = [w_1 + w_2]y$.

1. What are the conditional factor demands?
2. What is the production function?