1. Consider an asymmetric Bertrand duopoly in a homogenous good market where the market demand is given by \( D(p) = 10 - p \). The unit cost of production for firm 1 is 0 and that for firm 2 is 1. What is the monopoly price and profit for firm 1? What would be the profit of each firm if both firms charged this monopoly price? What is the highest profit each firm can get in the static game? Consider an infinitely repeated version of this game and derive the condition needed to ensure a collusive subgame perfect outcome where both firms charge firm 1’s monopoly price and share the market equally. (You need to specify the strategy of each firm clearly).

2. Consider an infinitely repeated symmetric Cournot duopoly in a homogenous good market where the inverse market demand is given by \( P(q) = 10 - q \) and both firms have zero production cost. Confining attention to trigger strategies where firms revert to the static Nash equilibrium actions in the event of deviation from collusion, derive the condition needed to ensure a perfectly collusive subgame perfect outcome where the monopoly outcome obtains in the industry every period. Explain why this condition differs from the Bertrand case.

3. For a repeated Bertrand duopoly with stationary market demand, discuss the effect of (declining) unit production cost over time on the possibility of collusion.

4. On the basis of your existing understanding of tacit collusion, discuss how the possibility of entry of firms (in some later period) may affect collusion in the industry.