

# **ECON4002 Popup quiz**

## **Spring 2024**

**Write your name in the blank sheet.**

### **Instructions**

1. When everyone is ready to start, I will scroll down to the next page.
2. You cannot consult any materials.
3. You can write your answer either in English or in Korean.
4. You have 10 minutes to submit your answer.

### Quiz on Nov 21

Two firms, F1 and F2, choose quantity produced in a market. The inverse demand function is given by  $P(q_1, q_2) = 12 - q_1 - q_2$ , where  $q_1$  and  $q_2$  are quantity produced by F1 and F2. The cost functions of F1 and F2 are  $C_1(q_1) = q_1^2$  and  $C_2(q_2) = \frac{q_2^2}{2}$ .

- (a) Suppose two firms simultaneously choose their production level. Find a Nash equilibrium.
- (b) Suppose F1 decides the production level first, and F2 decides the production level after observing F1's decision. Find a Subgame-Perfect Nash equilibrium.