

## Quiz 2

- 1) According to Özlem Türeci and Uğur Şahin, the development of the BioNTech vaccine against the COVID-19 virus was very fast due to their accumulated experience via learning-by-doing. Explain why this allows Pfizer, the major partner of BionTech in production and distribution, to avoid competition in the market.

- 2) Assume that the production technology is

$$Y(L) = L^2.$$

- a) Does this technology exhibit increasing, constant, or decreasing returns to scale?
- b) Derive the demand for labor.
- c) Compute the total cost assuming the wage rate is  $W > 0$ .
- d) Plot the marginal and average cost curves over the same graph.

- 3) Is there increasing or decreasing or constant returns to scale, if the production technology is

$$F(K, L) = K^{\frac{1}{2}} + L^{\frac{1}{2}}.$$

Based on your answer, which of the following is true?

- a) In a competitive economy, the profit of any firm with this technology would be zero.
- b) In a competitive economy, the profit of any firm with this technology would be positive.
- c) There would be no competitive market if a firm had this technology.