YORK UNIVERSITY

Faculty of LAPS

Final Examination

December 7, 2017

AP/Economics 2300 3.0 FC : Intermediate Microeconomic Theory I

S. Bucovetsky

time=2 hours

This exam consists of two sections. Part A counts for 40 percent of the grade, part B for 60.

Part A : Define any **8** of the following 10 terms. (40 % : 5 % per question)

1. convex preferences

2. inferior good

3. Laspeyres (base–weighted) quantity index

4. present value

5. (von Neumann – Morgenstern) expected utility function

6. compensating variation to a price increase

7. marginal revenue

8. increasing returns to scale

9. isoquant

10. long–run marginal cost function

Part B: Do any **5** of the following 10 questions. (60 % : 12 % per question)

1. Are the preferences represented by the utility function

$$U(F, C) = F + C^2$$

monotonic? Are they convex? (Here F is the person's food consumption and C is her clothing consumption.)

Explain briefly.

2. Is it possible that, in comparing a person's consumption bundles in 2000 (the base year), and 2017 (the current year), the Laspeyres quantity index is less than 1 and the Paasche quantity index is greater than 1?

Explain briefly.

3. What are the income and substitution effects of an increase in the price of food, if a person's preferences could be represented by the utility function

$$U(F, C) = 2\sqrt{F} + C$$

where F is her consumption of food and C is her consumption of clothing?

4. Explain why a person with well–behaved preferences might have a desired level of saving which **decreases** with the rate of return that she earns on her saving.

5. Suppose that a person is a risk–averse expected utility maximizer, and that she can buy as much or as little fire insurance as she wants for her house, but at a price which is actuarially unfair. That is, the price of buying $1000 worth of insurance is greater than 1000π, where π is the probability of a fire.

Discuss how much insurance this person would choose to buy.

6. What is the own–price–elasticity of aggregate demand in a market which consists of 5000 identical consumers, each of whom has an individual demand function with the equation

$$Q = \frac{100}{p^2}$$

where p is the price of the good, and Q the quantity demanded?

7. What is a person's best bidding strategy in a second–price sealed–bid auction, if she values the object (which is being auctioned off) at $100, and if there are 10 other bidders.

(In a second–price sealed–bid auction, each of the 11 bidders submits a secret bid on the object. The person who submits the highest bid wins the object, but the price she will have to pay is the **second**–highest of the 11 bids which were submitted.)

8. Why can't there be a perfectly competitive market for a good for which the technology exhibits increasing returns to scale?

continued

9. What is the (long–run total) cost function $C(w_1, w_2, y)$ for a good for which the production function is

$$f(x_1, x_2) = \min(x_1, 2x_2)$$

(where x_i is the quantity employed of input i, w_i is the unit cost of input i, and y is the quantity of the firm's output)?

10. What is the equation of the short–run supply curve for a firm which has a short–run total–cost function with the equation

$$SRTC = q^3 - 12q^2 + 48q$$

where q is the quantity of output produced by the firm?

the end