Exam 2023-10-17. Calculators are allowed. Computers, notes, or any other materials are not allowed.

Multiple choice questions (24p)

Correct answer +3p, incorrect answer -1p, no answer 0p.

Make sure to consider all alternatives before making your choice.

1. The French government recently decided to purchase large amounts of wine from domestic producers, with the stated purpose of destroying the wine. For this policy to increase the producer surplus of French wine producers it must be the case that. . .

    (a) the demand for French wine is sufficiently elastic.
    (b) the demand for French wine is sufficiently inelastic.
    (c) French wine is a normal good.
    (d) French wine is an inferior good.
    (e) French wine is a luxury good.

2. Overyielding refers to a situation where a polyculture (multiple crops grown together) produces higher yields than equal areas of the same crops grown separately. In economic terms, overyielding is an example of. . .

    (a) Constant returns to scale.
    (b) Decreasing returns to scale.
    (c) Diseconomies of scope.
    (d) Economies of scope.
    (e) Increasing returns to scale.

3. Which following feature in consumer preferences would mean that the standard consumption utility function framework cannot capture these preferences.

    (a) The more a consumer gets of good A the more they value an additional unit of it.
    (b) The more a consumer gets of good A the less they value an additional unit of it.
    (c) Beyond a level that they feel is enough, they don't value additional units of good A.
    (d) They are not selfish but rather also value the consumption of good A by others.
    (e) All of the above.
    (f) None of the above.

4. A firm would achieve immediate cost savings of €20m by skipping one regular maintenance cycle for its equipment. This would increase costs by €1m every year starting next year. Skipping makes economic sense if the firm's discount rate is. . .

    (a) at least 0.5%   (d) at most 0.5%
    (b) at least 5%   (e) at most 5%
    (c) at least 10%   (f) at most 10%

5. Price of avocados increases by 10%, and as a result the consumption of avocados decreases by 5%. What is the price elasticity of demand for avocados?

   (a) -0.2   (b) -0.5   (c) -1   (d) -1.5   (e) -2   (f) -5

6. The following figure depicts the consumption space over goods X and Y for a consumer with budget M, who faces a price increase: the price of good Y goes from P_Y^1 to P_Y^2. Which of the following represents the resulting income effect?
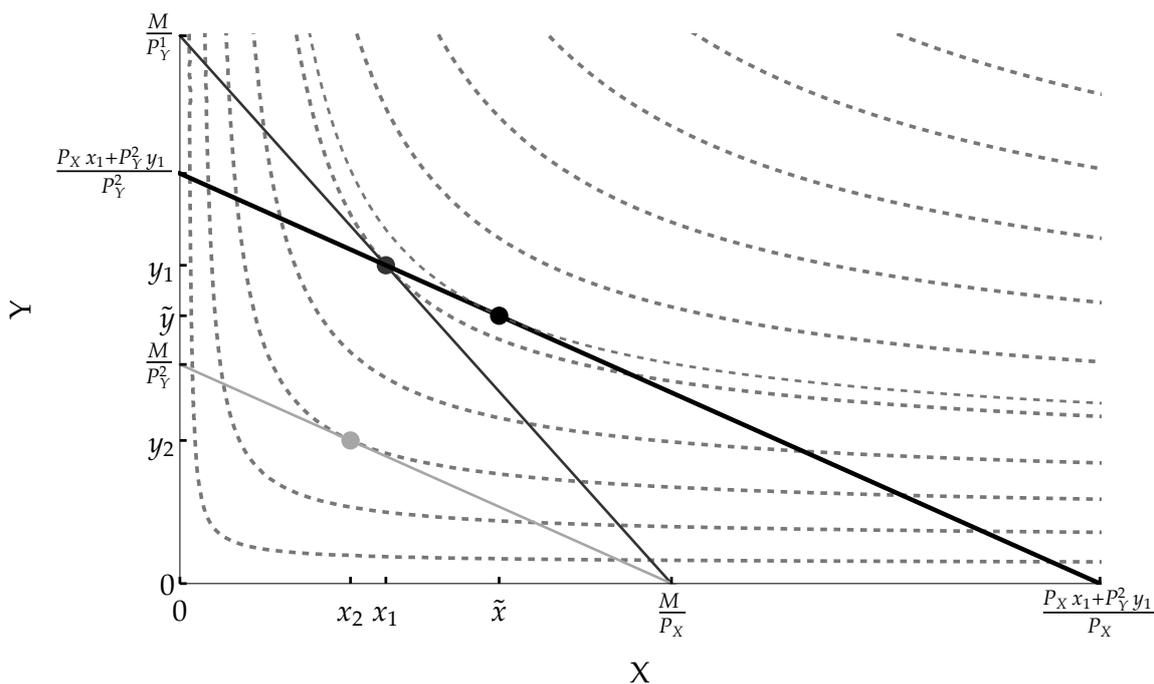
   (a) $y_1 - y_2$ (b) $y_2 - y_1$ (c) $y_1 - \tilde{y}$ (d) $y_2 - \tilde{y}$ (e) $\tilde{y} - y_1$ (f) $\tilde{y} - y_2$

7. Half of the 2000 residents of Busytown are into outdoor activities, their individual demand for green space hectares is $P_1^D(q) = 15 - q$. The other half are couch potatoes, their individual demand is $P_2^D(q) = 5 - 0.5q$. The marginal cost of providing green space is 5000 per hectare. With at least 1 hectare of green space per 1000 residents it would never get crowded. The amount of green space hectares q that would maximize total surplus in Busytown is. . .

   (a) 10   (b) 11   (c) 12   (d) 13   (e) 14   (f) 15

8. A typical root cause behind a natural monopoly is. . .

   (a) inelastic supply.   (d) decreasing returns to scale.
   (b) elastic supply.   (e) constant returns to scale.
   (c) lobbying by concentrated interests. (f) increasing returns to scale.

Text questions   3

  I (9p) Provide a brief explanation (1–3 sentences) for the following concept in economics. You can use an example (real or hypothetical) to support your explanation. The goal is to make the concept intelligible to a reader who has not studied microeconomics.

    (a) Inferior good

    (b) Risk aversion

    (c) User cost of capital

  II (16p) There is a country where consumers used 30% of their spending on staples last year. This year the prices of staples have gone up 50%, while other prices remained unchanged. The Consumer Price Index (CPI) has gone up by 10%. Now someone argues that, based on this, we know that the country's CPI is flawed, as the average price level faced by consumers has clearly gone up by 15%. Evaluate this argument briefly (2–4 sentences).

For the remaining questions you need to show the arguments and steps behind your reasoning, backed up by calculations where relevant.

III (27p) Omnibus Inc. is a bus service provider. The Lake Woebegon Transport Authority (LWTA) is procuring two services that could in principle be operated by different companies: urban bus lines, and suburban bus lines. Omnibus has figured out that its yearly cost of providing the urban bus service would be 15 €m, while its cost of providing the suburban bus service would be 30 €m/year. These costs cover equipment and personnel. Furthermore, if Omnibus is to operate in the LWTA region at all, it has to pay 25 €m/year to operate a bus depot there.

   (a) If LWTA holds procurement auctions in sequence, and Omnibus already made a commitment to provide the urban bus service at 30 €m/year, then what should be its reservation price for providing the suburban bus service?

   (b) If LWTA combines urban and suburban bus service into one procurement deal, then what should be Omnibus' reservation price for the combined service?

   (c) Suppose LWTA were to make take-it-or-leave-it offers: one for suburban service at S €m/year, and another for urban service at U €m/year. Under which combinations of $\{S, U\}$ should Omnibus accept one or both offers? You may answer graphically or with equations/inequalities.

IV (24p) The province of Kaukamaa owns a water utility. The demand for tap water in Kaukamaa is $Q^D(p) = 40 - p$ Gl/year, where p in €m. The utility has a yearly fixed cost of 240 €m and a marginal cost of 2 €m/Gl for delivering tap water to its customers.

   (a) Currently the Kaukamaa water utility is maximizing total surplus, subject to a budget balance constraint. What price does it charge for tap water?

   (b) If the utility were to provide tap water at the efficient price, then what would be the minimum yearly subsidy it needs from the government?

   (c) The province is desperately short of cash. It instructs the utility to maximize profits, which will be used to pay for government expenditure elsewhere. What is the impact on total surplus from tap water compared to part IVa? (A graph is not necessary, but a correctly drawn graph will earn partial credit.)