Documents and calculators are not allowed.

PART 1 : questions about the course

Specify the correct answers. For some questions, multiple correct answers are possible. Wrong answers will be penalized with negative points.

Question 1:

We consider a market, in which a company operates as a monopoly. The total cost function of the firm is given by $C(q)=3q+10$, where q is the quantity produced by the firm. The demand function is given by $D(p)=5-p$. The price chosen by the monopoly is :
- A/ p=1
- B/ p=4
- C/ The inverse of the elasticity of the demand function
- D/ None of these answers is correct

Question 2:

We consider a monopoly, which sells aircraft engines and aircraft. The price elasticity of the demand on the market for aircraft is equal to 2. Of the following answers, which mark up (expressed as a percent of the price) do you think is plausible for this firm on the market for aircraft?
- A/ 40%
- B/ 60%
- C/ 80%
- D/ None of these answers is correct

Question 3:

Consider the strategy of a firm, which sells toothpaste. The price of a tube of toothpaste is 2.5 euros. The price of two tubes of toothpaste is 4 euros.
- A/ This is a form of second-degree price discrimination.
- B/ This is a form of third-degree price discrimination.
- C/ This strategy is meant to extract consumer surplus.

Question 4:

We consider three firms, which compete on the market for mobile telephony. The firms are denoted by 1,2 and 3 respectively. The demand function is given by $Q(p)=2-p$. The unit cost of production capacities is high. The marginal cost of firm 1 is equal to 0. The

marginal cost of firm 2 and firm 3 is equal to 0.5. What are the quantities sold by the firms when they compete on this market?
- A/ q(1)=1.5 q(2)=0   et q(3)=0.
- B/ q(1)=2   q(2)=0   et q(3)=0.
- C/ q(1)=0,75 q(2)=0,25 et q(3)=0,25.
- D/ q(1)=0,5 q(2)=0,25 et q(3)=0,25.
- E/ None of these answers is correct

Question 5:

Demand fluctuations impact positively firms' incentives to collude.
- A/ This affirmation is wrong. Demand fluctuations reduce firms' profits and have a negative impact on firms' incentives to collude.
- B/ This affirmation is true. Firms have incentives to collude to smooth their profits, which are unstable when demand fluctuates.
- C/ This affirmation is wrong. It becomes more difficult to detect deviations.
- D/ This affirmation can be right or wrong. It depends on market conditions and on firms' information about consumer demand.

Question 6:

We consider three firms, which compete à la Bertrand every two period on a market. The goods offered by the three firms are perfectly homogenous. The marginal cost of production is equal to zero. We denote by d the discount factor. Collusion is sustainable on this market if (the sign ^means power):
- A/ d>2/3
- B/ d>(2/3)^(1/2)
- C/ d>(1/2)^(1/2)
- D/ None of these answers is correct

Question 7:

We consider a market, on which firms compete to produce a good, which is not a public good. A firm's manager thinks that if he raises his advertising budget, this is likely to toughen competition with his competitors.
- A/ This true if consumers bear some search costs.
- B/ This is true if the manager intends to invest in persuasive advertising.

Question 8:

We consider the laundry industry, in which a firm operates as a monopoly. The price elasticity of demand on this market is equal to 0.012. The elasticity of demand to advertising expenditures is equal to 0.5. Advertising expenses in this sector are likely to be close to:
- A/ 2,4% of turnover.
- B/ 0,6% of turnover.
- C/ 41,5% of turnover.
- D/ None of these answers is satisfactory.

Question 9:

We consider 10 identical companies on a market in which the unit cost of production capacities is high. The elasticity of demand on this market is equal to 0.2. What is the Lerner index on this market?
- A/ 0,5.
- B/ 0,2.
- C / 0.
- D/ None of these answers is satisfactory.

Question 10:

According to the Harvard School,
- A/ The higher the degree of competition on a market, the more efficient the market.
- B/ The higher the concentration of a market, the more likely it is that firms collude on this market.
- C/ The market concentration can reflect the efficiency of the firms, which operate on this market.

PART 2: THE SALE OF WATCHES ON THE INTERNET

In 2005, the French company Bijourama, a website selling watches on the internet, filed a complaint to the Conseil de la Concurrence, following the refusal of the group Festina, a watch manufacturer, to allow Bijourama to sell Festina watches on its website.

1) The relevant market

In its decision of July 24th, 2006, the Conseil noted:

"*The Conseil noted that the market was divided by professionals into three segments, depending on the watches' brand and on their prices: the lower segment for unbranded watches distributed in retail stores at an average unit price of 200 francs, that is, about 30 euros; a middle segment of branded watches distributed in supermarkets and by small watch and jewels stores (horlogers-bijoutiers) at prices between 200 and 750 francs, that is, between 30 and 115 euros; a top segment, dominated by the leading Swiss and French jewelers, where the sales of that segment is provided by a limited number of retailers with a range of prices ranging from 600 to over 100,000 francs, that is, from 90 to 15,000 euros.*"

Explain on which basis the Conseil relies to define the relevant market. What other method(s) could it use? In your opinion, what explains the choice of the method finally adopted by the Conseil?

2) Festina's market share

Two estimates of the market share of Festina on the market for watches are given below in two separate tables, one provided by Bijourama (the first one), the other by Festina (the second one). What do these two companies try to demonstrate? Why is the implicit question addressed through these two tables important? In your opinion, what did the Conseil conclude?

Part de Festina France sur le marché des montres à l'été 2005 selon Bijourama (Sources ECOSTAT et Panel 5)

Segment de prix	Marque Festina	Marque Lotus	Cumul Festina et Lotus
100 à 149 euros	24 %	2 %	26 %
150 à 199 euros	21 %	2 %	23 %
200 à 299 euros	15 %	2 %	17 %
Total	20 %	2 %	22 %

Part de Festina France sur le marché des montres en 2004 selon Festina France Source ECOSTAT

Segment de prix	Chiffre d'affaires des ventes globales de montres en France	Chiffre d'affaires de Festina + Lotus + Calypso + Candino	Part de marché de Festina France
50 à 100 euros	189 millions d' euros	11 599 112 euros	6 %
100 à 300 euros	200 millions d' euros	18 096 083 euros	9 %

3) Festina's distribution network

The Conseil notes that "*Festina (…) uses in France on a selective distribution network, with 2,600 independent retail stores. Festina France has no store of its own.*"

In your opinion, why Festina does not distribute its watches in retail stores of its own?

4) Festina's alleged practice

As previously stated, Festina's alleged practice was that it refused to Bijourama the possibility to commercialize Festina watches on its online retail store.

a) How is this practice for a producer of refusing some distributors to sell its products called?

b) The Conseil notes that "*Bijourama (…) insisted that the argument that only the existence of a physical network to offer customers the opportunity to receive advice and be able to exchange or repair items, was not convincing.*" The Council also notes that "*some products or services are less amenable to direct sales via the Internet because it is better to test them in store before purchases (for example, perfumes, high-end hi-fi systems, …).*" What point Bijourama and Council are implicitly discussing? Why is it an important element for judging Festina's alleged practice?

PART 3: THE DEPLOYMENT OF FIBER OPTIC NETWORK

Consider a country consisting of a continuum of geographical areas [0, zmax]. In this country, no broadband service is available initially. However, some operators are planning to deploy (build) fiber optic networks to provide high-speed services to consumers. We denote by $c(z)$ the cost of deploying a fiber optic network in area z, and we assume that $c(z)$ is increasing with z ($c'(z) > 0$). Finally, we assume that $c(zmax)$ is extremely high.

1) Suppose that one firm (firm 1) is deploying a fiber optic network in the country. Assume further that the profit of firm 1 for the provision of high-speed services is the same in each zone z and denoted by π (that is, π is a profit per-area).

   a. If the market is not regulated, at what level will π establish?

   b. Determine the equation that characterizes the fiber coverage of firm 1, that is, the extent of the country it will cover with a fiber optic network.

2) Suppose that firm 1 has deployed its fiber optic network in the country. A second firm, firm 2, identical to the first firm in terms of costs, etc., decides to invest in fiber too. Assume that the profit of firm 2 is equal to π in an area where firm 1 is not present and to πd in an area where firm 1 is present (again, π and πd are per-area profits).

   a. Do you think that $\pi d > \pi$, $\pi d < \pi$, $\pi d = \pi$, or is it impossible to decide?

   b. Will firm 2 decide to cover areas that the firm has not covered?

   c. Determine the equation that characterizes the fiber coverage of firm 2.

   d. Does competition increase the coverage of the country with fiber?