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2021 Taiwanese Economics Olympiad

Preliminary – Round 2: Application of Economics and Finance

Question Booklet

Time Saturday, March 27, 2021, 13:00 to 16:00 (180 minutes)

Location Taipei Fuhsing Private School, Taipei, Taiwan

Instructions

- Fill in your contestant number in the boxes at the top.
- Use only a blue or black pen or pencil.
- **Choose at least one problem from each section. Solve no more than 4 problems out of 6.**
- Do all rough work in the question booklet.

Information

- This is an individual-based round.
- If you provide solutions for 5 or 6 problems, all of them will be graded, but only 4 will add to your result. If you do not specify which to grade, only the lowest 4 grades will be included in the result.
- If not stated otherwise, consider all goods, services, and assets infinitely divisible.
- Numbers of firms and people may be only integers.
- Convey your ideas clearly. Do not skip important logical transitions in your reasoning.
- Take care of handwriting. If you strike something out, it will not be graded.
- You may leave the examination venue more than 60 minutes after this round begins.

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SECTION 1

Problem 1 Flying sky lanterns in Pingxi (平溪)

Flying sky lanterns in Pingxi, New Taipei was selected as one of the “52 things to do” in 2013 and has attracted a great number of domestic and international tourists. Over the past few years, environmental advocates have drawn people’s attention to environmental impacts of excessive numbers of sky lanterns released into the sky.

Statistics show that the average price of a sky lantern is NT\$150, and that approximately 400,000 sky lanterns are sold and released into the air annually. Flying sky lanterns is a popular event for tourists as well as an important financial source for local businesses, while it has given rise to a number of headaches such as mountain wildfires, animal deaths due to sky lantern remains, and even traffic accidents.

To solve problems related to sky lanterns, local businesses formed a coalition and initiated a campaign of “collecting remains for cash.” In the initiative, they fund NT\$10 to the coalition each time they produce a lantern to encourage consumers to collect sky lantern remains back. What’s more, the New Taipei authorities not only regulate times and places for flying lanterns but also invite tourists to mountain cleanups, so as to mitigate the environment impacts of sky lanterns to the greatest extent.

Questions

- (a) (15 pts) **Draw** a graph with demand and supply curves and analyze the difference of social surplus before and after Pingxi sky lantern businesses rolled out the campaign of “collecting remains for cash.” **Explain** such differences.
- (b) (15 pts) **Analyze** the difference of intervention from the local coalition and the New Taipei authorities. **Indicate** an approach from the above you would opt for with reasoning.



Problem 2 Electoral systems and voting behavior

The reformed electoral system of Taiwan's 113 legislators (equivalent to Members of Congress in the U.S. or Members of Parliament in the U.K.) since 2008 is known as the "single-district, two-vote system" (單一選區兩票制). The system is one of the variations of mixed electoral systems in the world.

Under the system, legislators are elected from (1) electoral districts and (2) party-list proportional representation (政黨名單比例代表制).

The country is divided into 73 single-member electoral districts (excluding 2 multi-member districts for 6 seats for indigenous peoples). That is, candidates can only compete for only one seat with the highest number of votes in each district. The rest of the 34 seats are allocated by percentage of votes gained by political parties.

In this sense, as for a voter, he/she has two ballots in an election. One vote is for electing one legislator for his/her electoral district, and the other is for electing one political party he/she prefers.

Question

- (a) (20 pts) By means of the game theory, **analyze** why only larger parties would be more likely to go for a single-member electoral district, and both larger and smaller parties would be more likely to run for seats from proportional representation under such an electoral system.

Further Imagine the following setting:

If Jeremy, a non-partisan politician, wishes to run for a legislator in an electoral district, he can choose to remain non-partisan or join either an existing large or small party before running in an election. A party can also choose to accept his application or not.

Question

- (b) (10 pts) In this regard, **identify** and **explain** which of the following scenarios would be most likely to take place.

- (1) If Jeremy chooses **not** to join any party, the returns (in the economics sense) for Jeremy, the big party, and the small party are 3, 9, and 5 units respectively.
- (2) If Jeremy chooses to join a big party, and his application is accepted, the returns for Jeremy, the big party, and the small party are 6, 8, and 3 units respectively.
- (3) If Jeremy chooses to join a big party, and his application is **not** accepted, the returns for Jeremy, the big party, and the small party are 2, 9, and 4 units respectively.
- (4) If Jeremy chooses to join a small party, and his application is accepted, the returns for Jeremy, the big party, and the small party are 4, 7, and 6 units respectively.
- (5) If Jeremy chooses to join a small party, and his application is **not** accepted, the returns for Jeremy, the big party, and the small party are 2, 9, and 5 units respectively.

SECTION 2

Problem 3 How much is news worth?

People acquire more information on the internet than elsewhere nowadays. Traditional media that used to rely on newspapers and magazines are also online. For readers, online news not only costs them little but also brings them benefits such as filtering articles based on personal settings and saving them for later reading. The convenience of online news attracts considerable users, whereas the nature of online news, free access, also lowers revenues of traditional media. Hence, some news websites start building paywalls for their content.

The earliest case of paid online news content is the Wall Street Journal (WSJ). The WSJ launched web news in 1996 and charged subscribers from January 1997 on. Today, The WSJ has more than 3 million online subscribers. Later, The New York Times and the Financial Times also kept up with the trend, rolling out subscription plans in 2005 and 2006.

In Taiwan, two major news corporations, Apple Daily and United Daily News also joined the line of paid news subscription. However, Apple Daily halted its subscription policy one year after launched. This is marked as a failure of paid news in Taiwan's journalism.

Question

- (a) (10 pts) **Compare** the WSJ and Apple Daily and **indicate two** reasons why the former reached a success, while the latter is associated with failure in paid news.

Suppose journalism resembles “manufacturing.” In such a supposed model, news media buy materials (i.e., news ingredients) from different sources and process them into products (i.e., editing and creating news content, either in the form of text or multimedia) for future sales to customers.

Questions

- (b) (15 pt) **Discuss** behavioral differences of (1) news sources, (2) news media, and (3) readers between the model of free online news and the supposed model of news production.
- (c) (5 pts) **Discuss** whether or not the supposed model would have a greater effect of “asymmetric information” between news media and readers.

Problem 4 Starbucks Coffee in Taiwan

Starbucks is a coffee chain well known worldwide and has locations in multiple countries. In Taiwan, U.S.-based Starbucks Coffee International and the Taiwan-based Uni-President Enterprises Corporation (統一企業) jointly established Starbucks Taiwan in 1998.

20 years after its operations in Taiwan, the Uni-President acquired all stock shares of Starbucks Taiwan in 2018, making the coffee chain its complete subsidiary in the Taiwanese market.

Questions

- (a) (10 pts) The price level of the U.S. is 2.66 times of that of Taiwan, while an iced latte in both countries cost around NT\$120. **Explain** this phenomenon.
- (b) (10 pts) Also a sub-brand of Uni-President, an iced latte of City Cafe in the corporation's 7-eleven chain is priced only NT\$55, around half the price of a Starbucks counterpart in Taiwan. **Explain** this phenomenon.
- (c) (10 pts) Starbucks Taiwan often runs "buy one, get one free" promotions. This is equivalent to buying coffee at a half price. **Discuss** whether a "buy one, get one free" or a direct "50% off" promotion is a better strategy for the brand.



SECTION 3

Problem 5 Planned obsolescence

Planned obsolescence (also called built-in obsolescence or premature obsolescence) is a policy of planning or designing a product with an artificially limited useful life or a purposely frail design.

With the policy introduced, a product can be considered obsolete or unfashionable after a certain predetermined period of time, as it was designed either to work in a slowing-down manner or to cease functioning abruptly.

Questions

- (a) (15 pts) **Indicate three** characteristics of products of planned obsolescence and **one** real-life example of such products.
- (b) (15 pts) **Discuss** influences of planned obsolescence on the market.



Problem 6 Time machine and Anywhere Door (任意門)

In the Japanese anime of *Doraemon* (哆啦A夢), Doraemon and Nobita (野比大雄) have two miraculous gadgets: a time machine that allows traveling between different times at a fixed location, and an “Anywhere Door” that allows traveling between locations at the same time.

Questions

- (a) (10 pts) Suppose Doraemon and Nobita can make profit from arbitrage (i.e., buying a product at a lower price somewhere and sell it at a higher price elsewhere) with the help of their time machine. **Identify and explain** possible changes in economic growth.
- (b) (20 pts) Suppose Doraemon and Nobita can make profit from arbitrage with the help of their Anywhere Door. **Discuss** inequality (in any aspects) within a country and among different countries.

END OF QUESTIONS