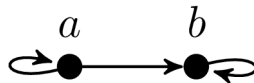


Economics round Solutions

Question 1.

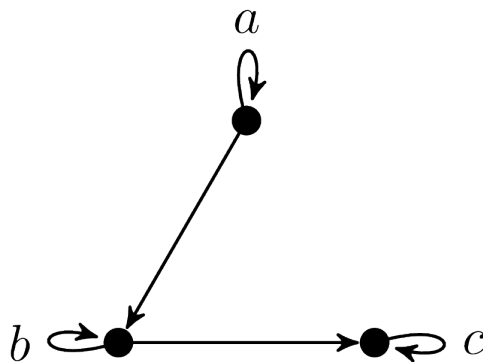
Jancsi is a student trying to choose his college major. Initially, he considers only two options: architecture and business. Since Jancsi likes to think visually, he invents a way to represent his preferences in a graph like the one below, representing each major by a point and his preferences as arrows:



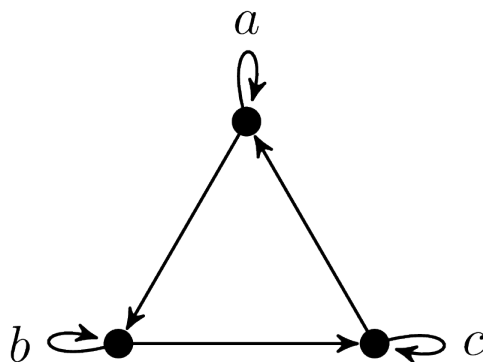
In Jancsi's graphs, a point represents a possible major and an arrow from point a to point b exists **if and only if** option b is *no better than* option a (that is, a is preferred to b or Jancsi is indifferent between a and b). The above graph indicates that Jancsi prefers major a (architecture) to major b (business).

After drawing the graph above, Jancsi began to consider another possible major, computer science (major c), and then drew a new graph to represent his preferences between all three majors. Which of the graphs below Jancsi could have drawn?

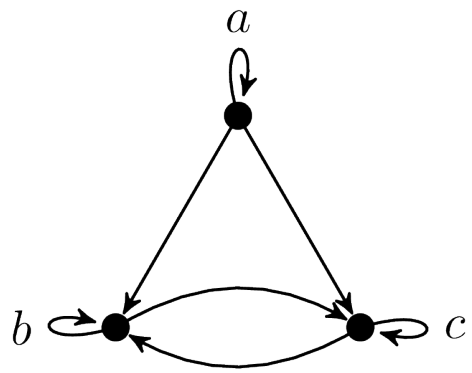
(a)



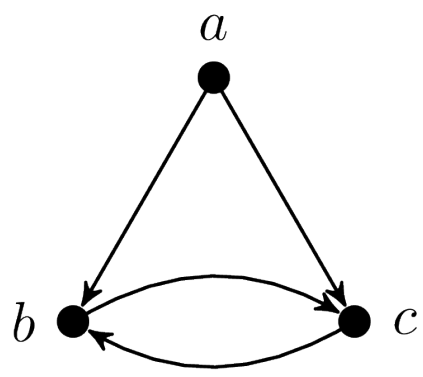
(b)



(c)



(d)



Question 2.

One of the main goals of legal systems is to disincentivize people from committing crimes. Even though lawmakers are far from being perfectly rational, the legal systems that have stood the test of time can be understood through the lens of economic analysis. However, it's not always easy to perform these analyses. The alternatives below explain how past legal systems worked and deduce their consequences; which deduction isn't coherent?

- (a) In Medieval Iceland, there was no executive branch of government; instead, law enforcement was provided by private citizens. Punishments usually consisted of fines. This system only worked because the right to enforce a settlement could be traded freely.
- (b) In the Qing legal system, the courts could order witnesses to be tortured in order to check the veracity of their statements. This system incentivized private settlement of disputes, as going to court was potentially dangerous for both parties.
- (c) In eighteenth-century England, private citizens were responsible for the prosecution of crime, not the government. This had no effect on the ability of the government to ignore crimes when convenient.
- (d) The Athenian legal system had a clever system to charge property taxes in a world before accounting: in order to avoid paying these taxes, all you had to do is find another citizen that hadn't paid his due. This citizen could then either pay up or trade all his assets with yours, in which case you'd pay the taxes. Under this system, it's only rational to pay taxes if there are no wealthier citizens that haven't yet paid their due.

Question 3.

During the last century, most sectors of the economy have had a tremendous growth in productivity — agriculture is a great example of one. However, some sectors were not so lucky — Beethoven's Ninth takes about 70 minutes to perform, whether today or at its 1824 premiere. Which of the assertions below about these sectors is **incorrect**?

- (a) The real wage of farmers has increased over time, while the real wage of musicians has remained constant.
- (b) Productivity growth in farming has benefitted musicians.
- (c) The price of a concert ticket in terms of tons of wheat has increased.
- (d) Farmers can purchase more concert tickets than in the past, since productivity growth in agriculture has made them richer.

Question 4.

Mr. Krabs, a stingy businessman who always seizes the most out of every opportunity available to make a profit, has recently noticed the increased popularity of his most loyal and passionate employee, SpongeBob SquarePants. Sea creatures are lining up in order to taste the Krabby Patty cooked by Mr. SquarePants and some are even willing to pay extra dollars just to have the food served to them directly. Upon seeing this marvellous opportunity, Mr. Krabs quickly does a mental calculation and finds out several facts:

1. Customers who are already satisfied with the service of Mr. Squidward Tentacles have a demand function of: $Q = 4000 - 1000P$
2. Customers who are eager to request a special service by Mr. SquarePants have a demand function of: $Q = 1/3(3200 - 400P)$
3. The monthly total cost of running Krusty Krab follows a function of: $TC = 250 + 2Q$, where Q is the total patties sold to both types of customers.

Given these circumstances, Mr. Krabs then dials your number, a bright economist's who is keen to give a free consultation, to ask a very important question, "What is the maximum profit I could possibly attain this month?"

- (a) 2691.18
- (b) 1950
- (c) 5000
- (d) 4117.65

Question 5.

Majapahit and Sriwijaya are two neighboring countries that are always competing with each other. In the race for economic growth, each government appears to pursue a different set of strategies. Majapahit is reported to have increased the government spending and lowered the tax rates for low-income households. On the other hand, Sriwijaya has instructed its central bank to lower the interest rates. According to the neoclassical theory, which country will have higher economic growth in the long run?

- (a) Majapahit
- (b) Sriwijaya
- (c) Both of them
- (d) None of them

Question 6.

The Riau Province has a production function of $Y = AK^a(LH)^{1-a}$. What is the nature of this function?

[Assume $0 < 1 < a$, where Y:real GDP, A:technology, K:amount of capital, L:amount of labour, H: human capital]

- (a) Constant economies of scale
- (b) Increasing economies of scale**
- (c) Decreasing economies of scale
- (d) Economies of scale are irrelevant

Question 7.

During World War II, the US Military found out that among the aircrafts that had returned from missions, many bullet holes were found in areas such as wings, tailwings and centerbody. Based on this data, where should the military put the armor to increase the aircraft survivability?



- (a) Wings and tailwings
- (b) Centerbody
- (c) Cockpit and engine**
- (d) All parts of the aircraft

Question 8.

Mr. Gold is the CEO of a company that makes silver rings. This company operates under perfect competition and its factors of production are homogeneous. When deciding how many jewelers he should hire, he decides to look at the marginal revenue of the product of labor, which is as shown in the following matrix. The fixed wage is \$3000. How much might be Mr. Gold's total revenue?

In the following situation, Mr. Gold decides in accordance to John Bates Clark, who proposed that the marginal revenue of the product of labor has to be equal to the wages.

Number of Jewelers	100	150	200	250
Marginal Revenue Product of labor	\$5000	\$4000	\$3000	\$2000

- (a) 3000\$
- (b) 850.000\$
- (c) 600.000\$
- (d) 12.000\$

Question 9.

Behavioral Economics acknowledges that humanity does not consist of 'Homo Economicus' individuals, who act and make decisions under careful calculation and harm/benefit analysis, but of humans, after all, suffering from irrationalities and imprudence. Thus, they deal with numerous types of biases that lead to certain decisions. Which is the type of bias that best explains (fits) the following situation?

Martina wants to buy a new watch, so she visits a watch store in her town. She chooses one that she wants to buy, and the dealer says that its price is \$200. Although she finds the price moderate, she realizes that it is way more expensive than 120\$ she was willing to spend. As she did not find another watch, she left and returned a week later. When Martina revisits the shop, the dealer says that its price is now \$150. Martina, very happily, buys the watch because she thinks that the watch is cheap.

- (a) Anchoring Bias
- (b) Survivorship Bias
- (c) Ostrich Bias
- (d) Endowment Effect

Question 10.

You and your best friend were planning to go on a trip a month ago. You have booked a hotel room in Marseille for \$800, without cancellation option. Immediately, your friend found a tickets' offer for \$370 each and suggested you book them, too. Ignoring him, you waited and finally booked two tickets for \$370 in total (half price), just three days before your departure. Your friend still feels unhappy for your behavior. Which of the following is right:

- (a) You saved \$370, as an economic rent of booking tickets later.
- (b) Your choice to postpone booking was clearly the right one at the time selected.
- (c) It is not clear that your friend's utility increases just because you saved 370\$.
- (d) Your aversion to risk is higher than your friend's.

Question 11.

Suppose a shipwrecked crew ends up on an isolated island. After spending 3 years on it, they succeed in creating a market to exchange food and fabric. At that time, another shipwrecked crew arrives and joins the existing community. They agreed to share the fabric they have saved instead of leaving immediately to an unknown destination, since they had no food supplies. Which of the following is not true in this case:

- (a) The appearance of the second crew could be considered to create external effects for the members of the first crew.
- (b) In the short run, after the arrival of the second crew, the relative price of food might have increased
- (c) The productivity of the island's land probably reduced after the arrival of the second crew.
- (d) The deal between the two crews is Pareto efficient.

Question 12.

Monopoly is a well-known board game. At the beginning, all players have equal amounts of money. As they play, they earn, lose and exchange money and property. After an hour, the Gini coefficient of players' possessions:

- (a) probably increases
- (b) probably decreases
- (c) definitely remains unchanged
- (d) cannot apply in this case

Question 13.

Developia has experienced a high GDP growth. Consequently, the tax revenue collected by the government over this period:

- (a) has definitely increased
- (b) has increased, since tax rates did not change
- (c) is impossible to predict based only on that data
- (d) has definitely remained unchanged

Question 14.

Six friends want to play football but they do not have a ball. They meet a seventh guy they didn't know before, who owns a ball and wants to play too. They have to play in teams with equal numbers of players. Anyone is free to leave at any moment before they accept the procedure, and ball ownership is indisputable. Which of the following mechanisms would leave the ball owner out of the game:

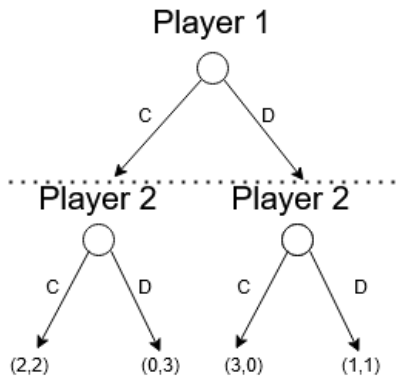
- (a) a democratic voting, since the six friends know each other
- (b) a random choice procedure
- (c) a bargaining/negotiation procedure
- (d) none

Question 15.

When the topic "Game Theory" is mentioned, the first thing that comes to mind is an $n \times m$ (usually 2×2) Matrix (Normal Form). However, that is not the only way to represent a game. There are other forms, such as extensive form, which consists of a tree:

- its nodes representing the players and payoffs
- its edges representing possible actions, and
- a dotted line representing information constraints.

Given this game in its extensive form:



Which of the following correctly converts it to its normal form?

(a)

		Player 2	
		<i>C</i>	<i>D</i>
Player 1	<i>C</i>	(2,2)	(0,3)
	<i>D</i>	(3,0)	(1,1)

(b)

		Player 2	
		<i>C</i>	<i>D</i>
Player 1	<i>C</i>	(2,2)	(0,3)
	<i>D</i>	(0,3)	(1,1)

(c)

		Player 2	
		<i>C</i>	<i>D</i>
Player 1	<i>C</i>	(1,1)	(0,3)
	<i>D</i>	(0,3)	(2,2)

(d)

		Player 2	
		<i>C</i>	<i>D</i>
Player 1	<i>C</i>	(1,1)	(3,0)
	<i>D</i>	(0,3)	(2,2)

Question 16.

The Handbook of Environmental Economics defines market-based environmental policy instruments as “regulations that encourage behavior through market signals rather than through explicit directives regarding pollution control levels or methods”.

Which of the following policies is NOT a market-based environmental policy?

- (a) Higher taxes on polluting fuels
- (b) Subsidies for the production of solar panels.
- (c) Phase-out of incandescent light bulbs
- (d) Carbon credits

Question 17.

Germano and John are in Antarctica having a heated argument on environmental protection policies (EPP). John says that those kinds of policies always hurt the growth and productivity of a country, while Germano argues the opposite, that EPP always increase the growth and productivity of an economy. Which one of them is right?

- (a) Germano, because EPP always increase the productivity of an economy, since only the best firms will adapt to the policy changes.
- (b) John, because EPP always decrease the quantity of jobs available in the economy.
- (c) John, because EPP is an arbitrary government intervention in the market.
- (d) None of them, because it depends on the design of the policy.

Question 18.

Mr. Poor works for a very low wage. He lives far away from his workplace, and he would definitely prefer to use his car to go to work whenever he could. But, he cannot afford to spend 6\$ a day on this, so he takes the bus 5 times a week, roundtrip, spending 2\$ per day. The total amount Mr. Poor can spend on transportation per week is fixed. It is announced that the tickets' price is reduced to half the initial price. Mr. Poor will probably _____ the quantity of tickets he buys. This might _____ the utility he derives.

- (a) increase, not change
- (b) do not change, maximize
- (c) reduce, maximize
- (d) increase, maximize

Question 19.

You have been accepted into a great university to study economics. You earned a scholarship for the tuition fees, but you have to relocate, so you need €10.000. Your loving uncle offers to pay this amount and you promise to return everything in four years.

Four years later you have made it to save €10.000, but, meanwhile, you successfully learned that average annual inflation during those years has been 2%.

How much money (approximately) should you repay him to recover his purchasing power?

- (a) 10.000€
- (b) 10.200€
- (c) 10.824€
- (d) 9.238€

Question 20.

Government is an important institution to support economic growth under:

- (a) capitalism
- (b) communism
- (c) both a and b
- (d) neither a nor b