

Name: **KEY**
ECON 201—Montgomery College

EXAM 1

- There are 110 possible points on this exam. The test is out of 100.
- You have one class period to complete this exam, but you should be able to complete it in less than that
- Please turn off all cell phones and other electronic equipment.
- You are allowed a calculator for the exam. This calculator cannot be capable of storing equations. This calculator cannot double as a cell phone.
- Be sure to read all instructions and questions carefully.
- Remember to show all your work.
- Recall basic logic. “Water is wet” is a true statement. “Water is wet and leopards have stripes” is a false statement.
- *Please print clearly and neatly.*

Part I: Matching. Write the letter from the column on the right which best matches each word or phrase in the column on the left. You will not use all the options on the right and you cannot use the same option more than once.

2 points each.

- | | |
|---|--|
| 1. F Compound returns | A. Tells you that you shouldn't invest in too much of the same thing |
| 2. D Decreasing marginal benefit | B. Why oil gets more expensive as more is taken out of the ground |
| 3. A Diversification | C. Tells you that perfect investments are too good to be true |
| 4. B Increasing marginal cost | D. Why it's possible to buy too much of a good thing |
| 5. E Rationality | E. Why incentives matter |
| 6. C Risk-return trade-off | F. Why "buy and hold" is a good strategy |
| 7. I Scarcity | G. Why private property must be strictly enforced |
| | H. Why you should avoid high fees |
| | I. Why there are choices |

1. *Since the return is reinvested and leads to greater returns, if you simply hold on to the investment you've bought, you can get a big payoff.*
2. *The more you buy the less valuable each additional unit is. A million diamonds would be too much of a good thing (is it even good anymore?) because of decreasing marginal benefit.*
3. *By investing in many different things you limit your risk to a fall in value of any particular company/industry/country. Diversification is one of the most important lessons in finance.*
4. *The more total oil extracted, the harder it is to get it. Oil production started with the easiest oil to get (the low hanging fruit). As those sources are exhausted, harder places must be utilized to get the same amount of oil. Increasing marginal cost.*
5. *Because people are rational, they respond to changes in the costs and benefits of an action. They respond to incentives.*
6. *An investment that's certain and has a high payoff would attract a lot of interest. With so many interested investors, competition between them would lower the returns; the investee could still achieve a target amount of money while offering a lower return (allowing him/her to keep more money rather than giving to investors). High yield investments are high yield because they need to be: they are high risk and a high return is the only way to attract investment. If someone*

- claims an investment is all upside and no downside, you should be suspicious.*
7. *Scarcity is when a resource has more uses than what can be fulfilled. Because there is scarcity, there is a question of which use should be fulfilled. There is a choice. Otherwise, everyone gets all they want. No choices need to be made.*

Part II: Multiple Choice. *Circle the letter that corresponds to the best answer.*
4 points each

8. In the market for electricity, what happens when the price of computers fall?
- a. **Demand shifts, causing quantity to increase**
 - b. Demand shifts, causing quantity to decrease
 - c. Supply shifts, causing quantity to increase
 - d. Supply shifts, causing quantity to decrease
 - e. It is impossible to tell with the information provided

Electricity and computers are complements. When computers become more common (thanks to a falling price), the demand for electricity increases.

9. Employers want employees who are smart. Which of the following is a way to signal you have this trait?
- a. **Being witty and insightful during your interview.**
 - b. Writing your estimation of your IQ on your resume.
 - c. Stating very confidently in your interview that you are intelligent.
 - d. A & C
 - e. None of the above

Remember that signaling requires demonstrative actions. It's too easy to lie or exaggerate your IQ. And simply saying you're smart isn't demonstrative; anyone can do that. But being witty and insightful is something that dumb people find hard to do but smart people find easy to do. Thus, being witty and insightful signals intelligence.

10. The "Broken Window Fallacy" references what economic idea?
- a. Diminishing marginal utility
 - b. Cost-benefit analysis
 - c. **Opportunity cost**
 - d. Comparative statics (supply and demand curve shifts)
 - e. None of the above

Bastiat's essay argues that breaking windows, while good for people who make windows, is not good for society. Resources spent to replace the

window could have been spent on something else. That something else is the opportunity cost.

11. If the stock price of Microsoft has been increasing steadily for a few weeks, what is most likely to happen to the stock price tomorrow according to the Efficient Market Hypothesis?
- It will continue to increase and then level off
 - It will continue to increase indefinitely
 - It will decrease slightly
 - It will decrease rapidly
 - It will stay the same / It is impossible to know beforehand**

Remember that the EMH means that all public information is built into the price. The current price is the best guess. If it wasn't, the price would change now. For example if A was true and that the price would clearly increase in the future, why wouldn't it increase now? Indeed, how do you know it's not leveling off now? Without any new information, there's no reason to think it would change. And that change depends on the nature of the information: bad news means it would go down and good news means it would go up.

12. Which of the following is an example of someone *not* being rational?
- Tonya, who wants to buy a house and cares a lot about the interior but is not willing to take the time to even walk into a house before buying it.**
 - Shanti, who is deeply afraid of mice and won't enter the rodent section of the zoo.
 - Lando, who is concerned about keeping the city he runs safe from a civil war and turns in the rebels to protect the city from the Empire. This is a decision he later regrets after the Empire unexpectedly betrays him.
 - B & C
 - All of the above

If Tonya cares a lot about the quality of the house, why not inspect it? It would be an easy thing to do but she's just not willing to do it. Not because there's an emergency that requires her attention. She just doesn't want to. That makes no sense.

Shanti, though, is being rational. She has a strong preference to live rodent-free. It's no surprise she won't go to that part of the zoo.

Lando was also rational. With the information available to him he made a decision that reflected with his goals. Making the wrong decision because

you were misinformed isn't irrational (though you could argue that believing the Empire wouldn't alter their deal might have been).

13. Which of the following is **not** a requirement for capitalism?
- a. Property must be strictly enforced.
 - b. Property must be equally distributed.**
 - c. Owners must keep all or most of the profits.
 - d. A & C
 - e. None of the above

In order for private property to mean anything, violations of property must be strictly punished. The rule of law doesn't allow for exceptions. And owners must keep what they've earned. Otherwise it's no different from not having the property at all; the incentive effects are the same.

But property doesn't have to be distributed evenly for capitalism to work. The key is that the owners are properly incentivized, not that everyone has an equal shot.

14. Which of the following contradicts the law of demand?
- a. An apartment in downtown DC has a higher rent compared to an apartment of the same size in the suburbs, but more people want the downtown apartment.
 - b. If the price of gold falls, causing fewer people will use gold for their engagement rings because now gold is less prestigious.
 - c. If the price of air travel falls, causing more people to buy air travel.
 - d. A & B
 - e. None of the above**

Recall that the law of demand includes the clause of ceteris paribus. All other things—like the location of the apartment or the perception of gold—must be the same. And while option C changes just the price, result in a lower quantity, that affirms the law of demand. It doesn't contradict it.

15. According the signaling theory of why more education leads to a higher income, what would happen if **everyone** had at least a college degree?
- a. People with only a college degree would make very little.**
 - b. People with only a college degree would be less productive than people with a master's degree.
 - c. You would only need a college degree to earn a good income.
 - d. A & C
 - e. None of the above

*Signals are relative. If everyone had a college degree you couldn't distinguish those that are hard workers and those that aren't. It's not a strong signal if everyone, regardless of skill, can send it. Those with **only** a college degree would have the weakest signal to send; they would end up with the lowest-paying jobs.*

16. Uber is software which allows smartphone users to purchase a ride from independent Uber drivers. As of September 2015, Uber is not yet in Scotland. But a similar app, Gett, is. Jim Edwards of Business Insider describes his experience using Gett during a particularly rainy day:¹

I tried hailing a cab through Gett and ... answer came there none! There were no cabs on the little animated map, and there were no drivers answering my call

It turns out that when there is peak demand for taxis — when it's raining or rush hour — then cab drivers are happy to take riders who hail them in the street. They don't respond to calls from Gett, which may require them to drive round the corner to where you actually are.

With Uber, when peak demand kicks in, the app sets a price surge. Uber users hate the surge because it makes rides more expensive. But drivers love it because they know they will get more money. The Uber app's price surge alerts more drivers, and more of them hit the street. That is why Uber is so reliable: There are *always* more Uber cars. Yet on Gett, the cars are maxed out when it rains.

Edwards argues because of this, Uber will win if it competes with Gett. What economic idea *best* explains Uber's advantage?

- a. **The law of supply**
- b. The law of demand
- c. Normal goods
- d. Efficient Market Hypothesis
- e. None of the above

Uber's strategy of increasing prices when demand is high takes advantage of the law of supply. A higher price means a higher quantity. Thus it's easier to find a driver. And while the price is higher, that's better than not being able to get a cab at all.

17. Which of the following is/are **not** an example of capital?
- a. The video game steel workers play when they are at home.
 - b. The iron that's turned into steel.
 - c. The trains which deliver raw materials to the steel mill.
 - d. **A & B**
 - e. None of the above

¹ <http://www.businessinsider.com/gett-v-uber-which-is-better-2015-9?r=UK&IR=T>

The video game is consumption. Though durable, it's not used for the production of other goods and services. The iron is used to produce steel but it's not durable. You can't use the same iron over and over again like you can with the trains. Only the trains—durable and used in the production process—are capital. Keep in mind that “producing goods or services” is a broad idea. It includes delivery, sales, management, hiring, advertising, janitorial work in the offices of the headquarters, and so on.

18. How is human capital like physical capital?
- Human capital can be sold used at a discounted price
 - Human capital lasts for years
 - Human capital is used to make other things
 - B & C**
 - None of the above

Human capital is durable: when you use knowledge you've gained you don't forget it. You can keep using that same knowledge. Like capital it can become obsolete and it can degrade (through forgetting, aging, etc.). But it is ultimately reusable. Human capital, by definition, makes people more productive. Just as machines, land, and electricity is used to make, say, a television, knowledge of how to build a television is also used.

19. In April 2012, the *New York Times* published an article challenging the assumption that breast-feeding is free; breast-feeding is incredibly time-consuming. Women who breast-feed longer than six months earn sustainably less over the course of five years than those who breast-feed less than that.²

Those longer-term nursing mothers spent more time out of the work force, or worked fewer hours, than their formula-feeding counterparts. The result of that shift in time spent on work or career stretched well beyond the months (or years) spent with a baby at the breast.

- What economic idea is this article invoking to make its argument?
- Law of demand
 - Opportunity cost**
 - Marginalism
 - Law of supply
 - None of the above

Breast feeding costs time (a lot of time) and while you're doing it it's hard to do anything else. (You not only have to hold the baby, no one else can do it for you!) By breast-feeding, you're not working and working is the

² http://parenting.blogs.nytimes.com/2012/04/03/the-true-cost-of-breast-feeding-this-milk-isnt-free/?_r=0

opportunity cost. You don't really give up "time" when you breastfeed. Time is what you spend. You're giving up what you would otherwise do with that time which, in this case, is earning money and building up your career.

Part III: Short Answer. *Answer the following.*

16 points each.

20. Consider the companies below which make up the Muppet Index, a brand-new fictional index. The table indicates their stock price without any stock splits.

Company	Stock Price
Procter and Gonzo	\$65
Wocka-Mart Stores	\$25
Walter Disney	\$40
General Electric Mayhem	\$70

Suppose General Electric Mayhem issued a stock split, doubling the number of shares. Calculate the new divisor for the Muppet Index. Remember to show all your work.

The first step is to determine what the current value of the index is. Since this is a new index, the divisor is 4.

$$\frac{65 + 25 + 40 + 70}{4} = \frac{200}{4} = 50$$

If General Electric Mayhem doubled the number of shares, its stock price would go from \$70 to \$35 (that way the value of the company, or its stock price times the number of stocks, is the same).

Because the value hasn't changed, our index value shouldn't change either. We need to replace the 4 with a new number, D. What must D be such that we'd get the same index value with this new stock price of \$35? That's what the equation below sets up. Then we solve for D.

$$50 = \frac{65 + 25 + 40 + 35}{D} \quad D = \frac{165}{50} = 3.3$$

21. Perform a brief cost-benefit analysis of if you should learn to juggle (or juggle really well if you already know how). Describe at least two benefits and at least two costs. Is it a good idea to learn how to juggle?

*The very first step, of course, is to define the scope of the analysis. Is it a good idea for **whom** that you learn how to juggle? The world? Your family? Just you?*

You probably thought along the lines of just you. That's fine as long as it's clear. The costs and benefits of will change based on your personality, values, etc. Let's do an example for me:

Benefits: When my son is old enough I think he'll enjoy it; putting a smile on his face is always a highlight of my day. But I can probably think of other ways to make him smile so this would be a relatively small marginal benefit. I'm also a pretty clumsy person so the practice needed to learn how to juggle might result in my improving my overall dexterity.

Costs: But because I'm pretty clumsy I'll probably hurt myself while trying to figure out how to juggle. I'd like to do activities with my family and since I'm so clumsy learning how to juggle will probably suck up much of my time so I won't be able to do that.

It appears that juggling is not for me. Benefits are pretty low and costs are pretty high.

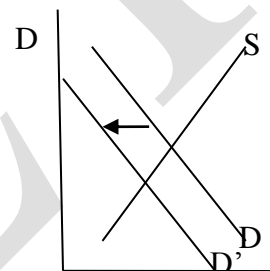
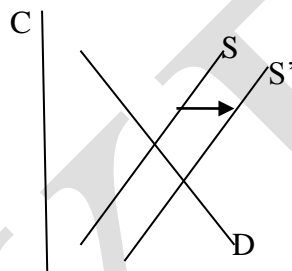
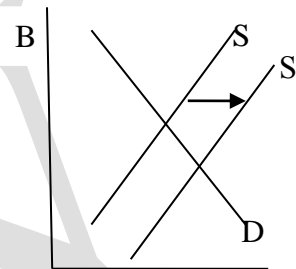
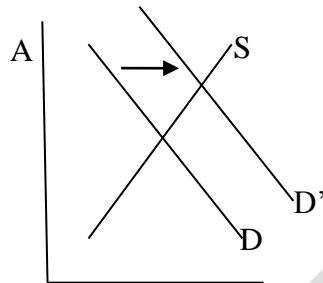
Note that my first benefit was a marginal benefit. While I care a lot about making my son smile, the question is how much more will he smile because I learned this particular skill? The answer is probably not that much more. If, however, this was the only way to make him smile then the marginal benefit would be much higher and I would probably learn how to juggle.

Also note that my cost was not "time." Time is what you spend. What you give up, what it costs you, is what you would have done with that time. It's the opportunity cost. Learning how to juggle doesn't cost me time. Learning how to juggle costs me activities with my family.

In order to get full credit on this question, you must have included at least one cost item that's an opportunity cost. It's too important to the analysis. (I can't mention this in the question itself because knowing you should include opportunity cost without being prompted is part of the question.)

22. Using the provided diagrams, illustrate the effects of the following (4 points each). Remember: do **not** shift more than one curve.

- The market for archery equipment after the release of *The Hunger Games* (whose main character is an expert archer).
- The market for romance novels after the price of textbooks falls (note both kinds of books are made with the same equipment and materials).
- The market for cars after the invention of the new steel alloy, which is stronger and cheaper than previous alloys.
- The market for coats after the price of sweaters falls (note both can keep people warm).



- Tastes change and people like archery more. Consumers value archery equipment more. Demand shifts up/right.*
- Because both goods use the same materials and machines, printing one means you can't print another. When the price of textbooks decreases, the opportunity cost of making romance novels have also decreased; one makes less money selling them. Since opportunity cost is like any other cost, supply shifts down/right. You can also think of this as textbook printers switching to romance novels. The additional producers shift supply down/right.*
- Since steel is used to make cars this cheaper alloy means the cost of inputs for cars has fallen. The cost to make cars shrinks; supply shifts down/right.*
- Because both goods keep people warm they are substitutes. As the price of sweaters decreases, people will use them instead of coats. Demand shifts down/left for coats.*