

KEY

Multiple Choice: Circle the letter next to the most appropriate answer. (2 pts each)

1. The medium of exchange function of money improves a society's welfare by
 - a. increasing the odds of satisfying both sides double coincidence of wants
 - b. reducing the number of prices one needs to know to make efficient choices
 - c. acting as an efficient store of value
 - ☒ d. lowering transactions cost and increasing the volume of trade

2. If people expect inflation over the coming year to be 2% and the rate of interest on a one year bond is 1%, then
 - a. the nominal rate of interest is about 3%
 - b. the nominal rate of interest is about 2%
 - ☒ c. the real interest rate is about -1%
 - d. the real interest rate is about 1%

3. Suppose that clam shells evolve to be a society's money, then
 - ☒ a. the clam shells that are easiest to get will be used as money
 - b. the very valuable clam shells that are often used to make jewelry will be used to money
 - c. it is unlikely that clam shells will also be a unit of account because clam shells cannot be made into "change"
 - d. clam shells will only serve as money for a short time because they fail all of the desirable traits of a medium of exchange

4. Suppose there is a sharp temporary decline in the price of oil that leads to an increase in income. Then,
 - ☒ a. Savings will rise
 - b. Savings will fall
 - c. Savings will not change
 - d. Can't tell what will happen to savings

5. Suppose the government invests in a smart grid that makes electricity more reliable and cheaper. As a result capital is more productive, and
 - a. The real interest rate will increase
 - ☒ b. The real interest rate will decrease
 - c. The rate of time preference will increase
 - d. The rate of time preference will decrease

6. Suppose the marginal product of capital is 11%, the rate of depreciation is 4%, and real rate of interest is 9%. Then firms will

- a. Increase their purchases of capital
- b. Decrease their holdings of bonds
- ☒ c. Decrease investment
- d. Not change their investment decision

9% is return on debt, while
 $7\% = 11\% - 4\%$ is return on capital

7. Suppose technology improves and the marginal product of capital increases. At the same time, current income increases temporarily. Then,

- a. The interest rate will increase, but investment may rise or fall
- b. The interest rate may rise or fall, but investment will fall
- ☒ c. The interest rate may rise or fall, but savings will increase
- d. The interest rate will decrease, but savings will fall

8. In the steady state,

- a. Consumption increases at a steady rate
- ☒ b. The rate of time preference equals the marginal product of capital less depreciation
- c. $MU(C_t) = MU(C_{t+1})/(1+\rho)$
- d. Consumption equals the ratio of $(1+r)$ to $(1+\rho)$

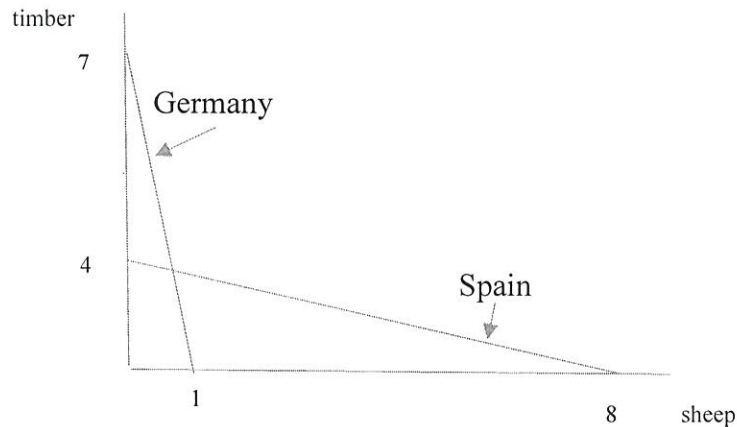
9. Suppose $MU(C_t) = 101$, $MU(C_{t+1}) = 98$, $\rho = .07$, and $r = .1$. Then,

- ☒ a. Households will substitute C_t for C_{t+1}
- b. Households will substitute C_{t+1} for C_t
- c. Households are in equilibrium
- d. The economy is in the steady state

$$\frac{MU(C_t)}{MU(C_{t+1})}(1+\rho) > 1+r$$

timber

7



10. Suppose there are two goods, timber and sheep, and the ppfs for Spain and Germany are given above. Also suppose that people in Spain and Germany consume both timber and sheep. Then,
- Germany has a comparative advantage in sheep, but may not trade with Spain if transactions costs are relatively high
 - ☒ b. Germany has a comparative advantage in timber and in the absence of transactions costs will produce timber
 - c. Spain has a comparative advantage in sheep and will produce sheep and timber.
 - d. Spain may or may not have a comparative advantage in timber depending on the size of transactions cost
11. Money improves society's welfare by all of the following **except**
- a. Providing a unit of account that reduces the amount of price information that people have to gather in order to make efficient decisions
 - b. By making the probability of one of the two coincidences needed to make a trade essentially equal to one
 - ☒ c. Providing a debt instrument that reduces transactions cost and makes the double coincidence of wants more likely to occur
 - d. By reducing transactions cost and allowing people to take advantage of their comparative advantage
12. Suppose there are four ounces of gold in a \$10 gold coin. Then,
- a. If the price of gold is \$2/oz, this coin is a commodity money
 - b. This coin is a full-bodied commodity money
 - c. Will be hoarded until the price of gold falls below \$10/oz
 - ☒ d. This coin will disappear when the price of gold exceeds \$2.50/oz.

13. Suppose there is a decrease in equilibrium savings and at the same time there is no change in the equilibrium rate of interest. These events may have been caused by

- a. An temporary increase in income coupled with an increase in the marginal product of capital
- b. An increase in capital inflows from abroad and a simultaneous decline in the marginal product of capital
- c. A permanent increase in income coupled with an decrease in the current relative price of capital
- ☒ d. An decrease in the uncertainty of future consumption together with a decrease in the expected rate of capital gains on investment goods

14. Suppose a series of tragic natural disasters in foreign countries reduces foreign savings in the U. S. Then,

- a. The equilibrium real interest rate in the U.S. will decrease
- ☒ b. The equilibrium real interest rate in the U.S. will increase
- c. The rate of time preference in the U.S. will increase
- d. The rate of time preference in foreign countries will increase

15. Suppose technology improves and the marginal product of capital increases. Then,

- ☒ a. The equilibrium interest rate will increase, and equilibrium investment will increase
- b. The equilibrium interest rate may rise or fall, but equilibrium investment will increase
- c. The equilibrium interest rate will rise, but equilibrium savings will fall
- d. The equilibrium interest rate will decrease and equilibrium investment will increase

16. Suppose two countries have the same function, $U(C_t)$ and $U(C_{t+1})$, face the same interest rate, have the same current consumption, but country J has a lower rate of time preference than country A. Then,

- ☒ a. Consumption must grow faster in country J than in country A
- b. The marginal product of capital in country A must be less than it is in country J
- c. Savings must be higher in country A than in country J
- d. All of the above are true

$\rho_J < \rho_A \Rightarrow \frac{MU(C_t)}{MU(C_{t+1})}$ must be higher in J so C_t is relatively lower than C_{t+1} in J because this would make $\frac{MU(C_t)}{MU(C_{t+1})}$ higher in J

$\frac{MU(C_t)}{MU(C_{t+1})} (1+\rho) = 1+r$

↑
 same

17. Suppose $MU(C_t) = 17$, $MU(C_{t+1}) = 16$, $\rho = .03$, and $r = .05$. Then,

- a. Households will substitute C_t for C_{t+1}
- b. Households will substitute C_{t+1} for C_t
- c. Households are in equilibrium
- d. The economy is in the steady state

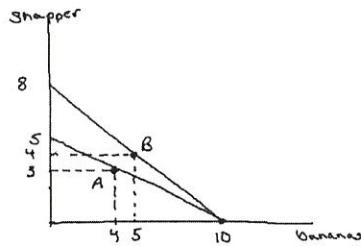
18. Suppose people expect the relative price of homes to increase more rapidly in the future, and simultaneously, incomes in the country increase permanently. Other things the same,

- a. The equilibrium interest rate may rise or fall, but equilibrium savings will increase
- b. The equilibrium interest rate and equilibrium savings will increase
- c. The equilibrium interest rate will fall and equilibrium savings will increase
- d. The equilibrium interest rate will rise, but equilibrium savings may fall or rise

cause I^D for homes to ↑

no effect on savings

1) Suppose the marginal utility from consumption at time t , $MU(C_t)$, is 42.3 and the marginal utility from consumption at time $t+1$, $MU(C_{t+1})$, is 41.1. If the rate of time preference is 6%, then what is the real rate of interest?



- 2) The diagram above shows the before and after trade equilibria for the island of St. Lucia. From this diagram, identify the good in which St. Lucia has a comparative advantage, and measure the gains from trade in terms of snapper? What happens to these gains from trade when we introduce trading costs? How much would trading costs have to be in order to discourage St. Lucia from trading at all?
- 3) Suppose the economy is in a steady state, the rate of time preference is 5%, and depreciation rate is 3%. What is the MPK?
- 4) Suppose a household's current income is 120 and the income next period is 130. Ratio of $MU(C_t)$ to $MU(C_{t+1})$ is 1.04 and the rate of time preference is 1.05. What is the maximum consumption this household can consume in the current period?

Numerical

$$1) \frac{42.3}{41.1} (1.06) = 1+r \Rightarrow r = .0909$$

$$2) \text{ welfare change in snapper} = \underbrace{1}_{\text{snapper}} + \underbrace{1 \times .8}_{\text{snapper value of } \tau \text{ in banana consumption}} = 2.8$$

- trading costs reduce the welfare gain
- if trading costs exceed 2.8 snapper then trade will not take place

3) In a steady state $\rho = r$ and $r = MPK - d$ in equilibrium, so

$$.05 = MPK - .03 \Rightarrow MPK = .02 \text{ or } 2\%$$

