

NAME: \_\_\_\_\_ Student ID: \_\_\_\_\_

---



**College of Business Administration**  
**Department of Economics**  
**Aggregate Economic Condition Analysis**  
**Lecturer: O. Mikhail**  
**ECO 3203-0001**  
**Summer 2004**

---

# Mid-Term Exam

- This closed book Exam is worth 100 points.  
The exam totals 50 Multiple-Choice Questions and 2 Short-Essay Questions.  
Each Multiple-Choice Question is worth 1.6 points.  
Each Short-Essay question is worth 10 points.  
Allocate your time accordingly.
- Including the cover page, the exam totals 10 pages.
- DO NOT forget to write your name and your student id on the exam booklet.
- Non-Programmable calculators and language dictionaries are allowed.
- At the end of the exam, hand-in the exam booklet to the examiner.
- Write clearly.

**June 1, 2004**

**2:05 p.m. – 3:45 p.m.**

**BA 1-220**

## Multiple-Choice Questions (80 points)

- 1) Jim's Nursery produces and sells \$1100 worth of flowers. Jim uses no intermediate inputs. He pays his workers \$700 in wages, pays \$100 in taxes and pays \$200 in interest on a loan. Jim's contribution to GDP is
- a) \$900.
  - b) \$1000.
  - c) \$1100.
  - d) \$1800.

Answer: (c)

For the following four questions, suppose that an economy produces only food and clothing, and that price and quantity data are given in the table below.

Year 1

Good	Quantity	Price
Food	20	\$6
Clothing	10	\$8

Year 2

Good	Quantity	Price
Food	25	\$10
Clothing	20	\$7

- 2) Year 1 nominal GDP is
- a) \$200.
  - b) \$270.
  - c) \$310.
  - d) \$390.

Answer: (a)

- 3) Year 2 nominal GDP is
- a) \$200.
  - b) \$270.
  - c) \$310.
  - d) \$390.

Answer: (d)

- 4) Suppose that Year 1 is the base year. Year 2 real GDP is
- a) \$200.
  - b) \$270.

- c) \$310.
- d) \$390.

Answer: (c)

5) Suppose that Year 2 is the base year. Year 1 real GDP is

- a) \$200.
- b) \$270.
- c) \$310.
- d) \$390.

Answer: (b)

6) To calculate the change in chain-weighted real GDP from one year to the next, we use

- a) first-year prices.
- b) second-year prices.
- c) the percentage change in prices from the first year to the second year.
- d) average prices over the two years.

Answer: (d)

7) Suppose that GDP is equal to 1000, national saving is equal to 200, the current account deficit is equal to 100, and the government budget deficit is equal to 50. Private savings must equal

- a) 150.
- b) 200.
- c) 250.
- d) 300.

Answer: (c)

8) The unemployment rate equals

- a)  $\frac{\text{Labor force}}{\text{Number unemployed}}$
- b)  $\frac{\text{Number unemployed}}{\text{Labor force}}$
- c)  $\frac{\text{Labor force}}{\text{Total working age population}}$
- d)  $\frac{\text{Number unemployed}}{\text{Total working age population}}$

Answer: (b)

9) The expenditure components of GDP include all of the following **except**

- a) consumption.
- b) investment.
- c) net exports.
- d) net factor payments.

Answer: (d)

- 10) The income-expenditure identity is best paraphrased as
- a) all spending generates income.
  - b) all profits are used for investment spending.
  - c) on average, consumers cannot save.
  - d) on average, government can spend no more than what it collects in income taxes.

Answer: (a)

- 11) Additions to inventory are
- a) not counted as an expenditure in GDP accounting.
  - b) counted as an intermediate input.
  - c) counted as a component of investment spending.
  - d) subtracted from sales revenue in calculating profit income.

Answer: (c)

- 12) GDP and GNP may differ
- a) because some income generated by domestic production may be received as income by foreign residents.
  - b) because some intermediate good inputs are imported.
  - c) because some workers are illegal aliens.
  - d) whenever tariff rates become excessively high.

Answer: (a)

- 13) A lump-sum tax is a tax that
- a) can be avoided by strategic behavior.
  - b) does not depend on the actions of the economic agent being taxed.
  - c) does not depend on the actions of the government.
  - d) distorts economic decisions.

Answer: (b)

- 14) In a one-period economy, all of the following are equivalent expressions of the budget constraint except
- a)  $C = w(N^s + l) + \pi - T$
  - b)  $C = wN^s + \pi - T$
  - c)  $C = w(h - l) + \pi - T$
  - d)  $C + wl = wh + \pi - T$

Answer: (a)

- 15) With consumption on the vertical axis and leisure on the horizontal axis, the slope of the budget line is equal to
- a)  $w$ .
  - b)  $-w$ .
  - c)  $\pi$ .
  - d)  $-\pi$ .

Answer: (b)

- 16) At the optimal consumption bundle the marginal rate of substitution of leisure for consumption is equal to
- a) the real wage and the budget line is tangent to an indifference curve.
  - b) minus the real wage and the budget line is tangent to the indifference curve.
  - c) the real wage and the budget line intersects the indifference curve.
  - d) minus the real wage and the budget line intersects the indifference curve.

Answer: (a)

- 17) A defense for the assumption that consumers maximize is that
- a) consumers never make mistakes.
  - b) mistakes by the consumer are not likely to last for a long time.
  - c) it allows for many possible outcomes.
  - d) mistaken consumers may receive counseling from the government.

Answer: (b)

- 18) When consumption and leisure are both normal goods, an increase in real dividend income minus taxation, the rational consumer
- a) increases consumption and increases labor supply.
  - b) increases consumption and reduces labor supply.
  - c) reduces consumption and increases labor supply.
  - d) reduces consumption and reduces labor supply.

Answer: (b)

- 19) An increase in the real wage
- a) represents a pure substitution effect.
  - b) represents a pure income effect.
  - c) represents a combination of income and substitution effects.
  - d) causes a parallel shift in the consumer's budget line.

Answer: (c)

- 20) An increase in the real wage
- a) unambiguously increases consumption and increases labor supply.
  - b) increases consumption and has an ambiguous effect on labor supply.
  - c) has an ambiguous effect on consumption and increases labor supply.
  - d) has an ambiguous effect on both consumption and labor supply.

Answer: (b)

- 21) In the production function,  $Y = zF(K, N^d)$ , total factor productivity is
- a)  $Y/K$ .
  - b)  $Y/N^d$ .
  - c)  $F/Y$ .
  - d)  $z$ .

Answer: (d)

22) The marginal product of a factor of production

- a) is equal to the ratio of the amount that factor of production to the amount of output produced.
- b) is equal to the amount of additional output that can be produced with one additional unit of each factor input.
- c) is equal to the amount of additional output that can be produced with one additional unit of that factor input, holding constant the quantities of the other factor inputs.
- d) always exceeds the average product of that factor input, holding constant the quantities of the other factor inputs.

Answer: (c)

23) As the quantity of capital increases, the marginal product of capital

- a) is constant.
- b) increases.
- c) decreases.
- d) may either increase or decrease.

Answer: (c)

24) An increase in total factor productivity shifts the production function

- a) upward and increases the marginal product of labor.
- b) upward and decreases the marginal product of labor.
- c) downward and increases the marginal product of labor.
- d) downward and decreases the marginal product of labor.

Answer: (a)

25) An increase in government spending shifts the PPF

- a) upward, but does not change its slope.
- b) upward, and also changes its slope.
- c) downward, but does not change its slope.
- d) downward, and also changes its slope.

Answer: (c)

26) An increase in government spending

- a) increases consumption, increases hours worked, and increases the real wage.
- b) reduces consumption, increases hours worked, and increases the real wage.
- c) reduces consumption, increases hours worked and reduces the real wage.
- d) reduces consumption, reduces hours worked, and reduces the real wage.

Answer: (c)

27) Changes in government spending are not likely causes of business cycles because government spending induced business cycles would, counterfactually predict

- a) countercyclical real wages.
- b) procyclical real wages.

- c) countercyclical employment.
- d) procyclical employment.

Answer: (a)

28) Changes in government spending are not likely causes of business cycles because government spending induced business cycles would, counterfactually predict

- a) countercyclical consumption.
- b) procyclical consumption.
- c) countercyclical employment.
- d) procyclical employment.

Answer: (a)

29) An increase in total factor productivity shifts the PPF

- a) upward, but does not change its slope.
- b) upward, and also changes its slope.
- c) downward, but does not change its slope.
- d) downward, and also changes its slope

Answer: (b)

30) An increase in total factor productivity

- a) increases consumption, increases output, and increases the real wage.
- b) reduces consumption, increases output, and increases the real wage.
- c) reduces consumption, increases output and reduces the real wage.
- d) reduces consumption, reduces output, and reduces the real wage.

Answer: (a)

31) Changes in total factor productivity are plausible causes of business cycles because productivity-induced business cycles correctly predict

- a) real wages and total hours must be procyclical.
- b) real wages and consumption must be procyclical.
- c) total hours worked consumption must be procyclical.
- d) consumption and government spending must be procyclical.

Answer: (b)

32) Real business cycle theory argues that the primary cause of business cycles is fluctuations in

- a) preferences.
- b) government spending.
- c) the importance of externalities.
- d) total factor productivity.

Answer: (d)

- 33) Intertemporal substitution of labor suggests that
- a) the substitution effect of a permanent increase in the real wage is larger than the substitution effect of a temporary change in the real wage.
  - b) the substitution effect of a permanent increase in the real wage is smaller than the substitution effect of a temporary change in the real wage.
  - c) the substitution effect of a permanent increase in the real wage is equal to the substitution effect of a temporary change in the real wage.
  - d) hours worked are not affected by changes in real wages.

Answer: (b)

- 34) The Solow residual attempts to measure changes in
- a) the impact of government spending on aggregate output.
  - b) total factor productivity.
  - c) changes in preferences for consumption vs. leisure.
  - d) output produced above and beyond wage and dividend income.

Answer: (b)

- 35) An increase in the real interest rate is an example of a
- a) pure substitution effect.
  - b) substitution effect and a positive income effect.
  - c) a substitution effect and a negative income effect.
  - d) substitution effect and an income effect whose sign depends on whether the consumer is initially a borrower or a lender.

Answer: (d)

- 36) An increase in the real interest
- a) increases savings for both borrowers and lenders.
  - b) increases savings for borrowers, but has an uncertain effect on the savings of lenders.
  - c) increases savings for lenders, but has an uncertain effect on the savings of borrowers.
  - d) has an uncertain effect on the savings of both borrowers and lenders.

Answer: (d)

- 37) For a lender, an increase in the real interest rate
- a) definitely reduces current consumption and increases future consumption.
  - b) reduces current consumption and has an uncertain effect on future consumption.
  - c) has an uncertain effect on current consumption and increases future consumption.
  - d) has an uncertain effect on both current and future consumption.

Answer: (c)

- 38) For a borrower, an increase in the real interest rate
- a) definitely reduces current consumption and increases future consumption.
  - b) reduces current consumption and has an uncertain effect on future consumption.
  - c) has an uncertain effect on current consumption and increases future consumption.
  - d) has an uncertain effect on both current and future consumption.

Answer: (b)

- 39) The substitution effect of a change in the real interest rate is an example of
- a) an intratemporal substitution effect.
  - b) an intertemporal substitution effect.
  - c) an atemporal substitution effect.
  - d) a temporary substitution effect.

Answer: (b)

- 40) The marginal propensity to consume is a measure of the responsiveness of current consumption to changes in
- a) current income.
  - b) future income.
  - c) permanent income.
  - d) wealth.

Answer: (a)

- 41) In a two-period model, government spending is financed through
- a) taxes and transfer payments.
  - b) taxes and issuing debt.
  - c) taxes and redeeming debt.
  - d) taxes only.

Answer: (b)

- 42) The government's present value budget constraint states that
- a) taxes must equal government spending in each period.
  - b) the present value of government spending must be equal to the present value of consumers' disposable incomes.
  - c) the present value of government spending must be equal to the present value of taxes.
  - d) the government may run deficits each and every year, as long as the deficits are sufficiently small.

Answer: (c)

- 43) For a competitive equilibrium in a two-period model, all of the following must be true except
- a) Each consumer picks first- and second-period consumption given the real interest rate.
  - b) There must be an equal number of borrowers and lenders.
  - c) The government's present-value budget constraint holds.
  - d) The credit market clears.

Answer: (b)

- 44) The Ricardian equivalence theorem implies that
- a) government debt policy must be handled correctly for the economy to prosper.
  - b) the amounts of government spending are neutral.
  - c) an increase in government spending has no effect on the economy, as long as there is an equal change in taxes.
  - d) the timing of taxes collected by the government is neutral.

Answer: (d)

- 45) If government spending is held constant and Ricardian equivalence holds,
- a) an increase in the government budget deficit is always matched by a reduction in private savings.
  - b) an increase in government savings is always matched by an increase in the government budget deficit.
  - c) an increase in government savings is always matched by an equal increase in private savings.
  - d) an increase in government savings is always matched by an equal reduction in private savings.

Answer: (d)

- 46) An important reason why Ricardian equivalence may fail is if
- a) borrowing and lending is done through intermediaries.
  - b) government debt incurred today may not be paid off until after some current consumers are deceased.
  - c) state and local governments also engage in debt finance.
  - d) some consumers are borrowers, while other consumers are lenders.

Answer: (b)

- 47) Ricardian equivalence is often less attributed to David Ricardo and more attributed to
- a) Gerald O'Driscoll.

- b) Adam Smith.
- c) Milton Friedman.
- d) Robert Barro.

Answer: (d)

- 48) When different consumers pay different amounts of taxes, Ricardian equivalence may fail because
- a) alternative ways of collecting the same tax revenue can affect the distribution of income.
  - b) consumers can become jealous of one another.
  - c) such differences in taxes create credit market imperfections.
  - d) higher taxes on more talented people may be politically popular.

Answer: (a)

- 49) Distorting taxes can invalidate Ricardian equivalence because
- a) they confuse consumers about the need for government to repay its debt.
  - b) alternative ways of collecting the same tax revenue produce different amounts of lost welfare.
  - c) they are inferior to lump-sum taxes.
  - d) they are more popular, politically, than lump-sum taxes.

Answer: (b)

- 50) The phenomenon that some consumers pay a higher interest rate when they borrow than the interest rate they receive when they lend is best described as an example of
- a) irrational behavior.
  - b) a credit market imperfection.
  - c) a vast banking conspiracy.
  - d) the burden of public debt.

Answer: (b)

NAME: \_\_\_\_\_ Student ID: \_\_\_\_\_

**SHORT ESSAY QUESTIONS. 20 points.**  
**Answer in the given space below each question.**

**Question 1 (10 points) Real Business Cycle Theory**

Explain why employment may rise or fall in response to an increase in total factor productivity.

Solution

The substitution effect of an increase in  $z$  is that the representative consumer works more hours. The income effect of an increase in  $z$  is that the representative household works less hours. The sign of the net effect is ambiguous.

**Question 2 (10 points) Elimination of Dividend Tax**

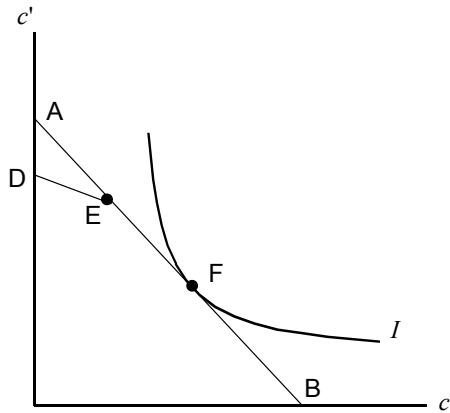
To understand the argument for the recent call for the elimination of the dividend tax, suppose that the government introduces a tax on interest earnings. That is, borrowers face a real interest rate of  $r$  before and after the tax is introduced. The lenders receive an interest rate of  $(1-x)r$  on their savings, where  $x$  is the tax rate. Therefore, we are looking at the effects of having  $x$  increase from zero to some value greater than zero, with  $r$  assumed to remain constant.

**SUPPLEMENT YOUR ANSWER WITH A GRAPH WHENEVER POSSIBLE**

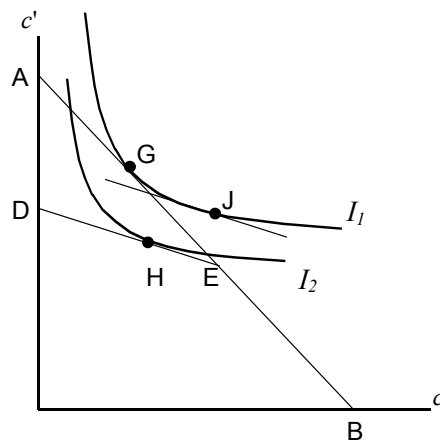
- a) Show the effect of the increase in the tax rate on a consumer's lifetime budget constraint.
- b) How will the increase in the tax rate affect the optimal choice of consumption and saving?

Solution

- a) Initially, AB in the Figure depicts the consumer's budget constraint. The introduction of the tax results in a kink in the budget constraint, since the interest rate at which the consumer can lend,  $r(1-t)$ , is now smaller than the interest rate at which the consumer borrows,  $r$ . The kink occurs at the endowment, E.



b)



b.) The top panel of the Figure shows the case of a consumer who was a borrower before the imposition of the tax. This consumer is unaffected by the introduction of the tax. The bottom panel of the Figure shows the case of a consumer who was a lender before the imposition of the tax. Initially the consumer chooses point  $G$ , and then chooses point  $H$  after the imposition of the tax. There is a substitution effect that results in an increase in first-period consumption and a reduction in second-period consumption, and moves the consumer from point  $G$  to point  $J$ . Savings also falls from point  $G$  to point  $J$ . The income effect is the movement from point  $D$  to point  $B$ , and the income effect reduces both first-period and second-period consumption, and increases savings. On net, consumption must fall in period 2, but in period 1, consumption may rise or fall. The Figure shows the case in which first-period consumption increases, which is a case where the substitution effect dominates.