Economics 201 Fall 2010
Final Exam Solutions

Part A. (About 30 minutes) Fill in the blank with the best word or phrase (or circle the appropriate bracketed choice). You may give a one- or two-sentence explanation to support your answer.

A-1. The short-run supply curve of a perfectly competitive firm is the portion of the **marginal cost** curve lying **above** the **average variable cost** curve.

A-2. A curve showing different combinations of labor and capital that will produce 100 widgets is called a(n) **isoquant**.

A-3. The short-run Phillips curve shifts up and to the right if there is an increase in the **expected rate of inflation** or an increase in the **natural rate of unemployment**.

A-4. The characteristics of pure public good are **nonrivalry** and **nonexcludability**.

A-5. If bicycles and scooters are substitutes, then a decrease in the price of bicycles will **decrease** the demand for scooters, which will **decrease** their price.

A-6. A profit-maximizing monopoly produces **below** the socially optimal amount because **marginal** cost is **less** than price.

A-7. A perfectly elastic demand curve is [vertical / **horizontal**].

A-8. If there is no change in the preferences or opportunities of borrower and lenders, then an increase in the expected rate of inflation will cause the nominal interest rate to **increase (by the same amount)** and the real interest rate to **not change**.

A-9. Discouraged workers are counted as [employed / unemployed / **out of the labor force**] and as such are included in the calculation of the unemployment rate in the [numerator / denominator / both / **neither**].

A-10. All government spending must be paid for by **current** taxes, **future** taxes, or **inflation** taxes.

A-11. The long-run equilibrium rate of inflation equals the rate of **money growth** minus the rate of **real output growth**.

A-12. The lender in a federal-funds market transaction is a/the **bank**; the borrower is a/the **bank**.

A-13. Quantitative easing involves the Fed purchasing **securities or other assets** and increasing banks' **reserves**.

A-14. An insured hospital patient deciding to have additional, unnecessary tests is an example of the information problem **moral hazard**; a healthy person deciding not to buy health insurance is an example of **adverse selection**.

A-15. The amount consumed out of an additional dollar of income is called the **marginal propensity to consume**.

Part B (About 45 minutes): Each of the following statements is true, false, or uncertain (as are all statements). For each, tell which it is and explain your answer. Points will be awarded based largely on your explanation.

B-1. **T**FU: A low real interest rate will make an optional, pre-paid warranty on a product more attractive.

True. Buying the prepaid warranty, in addition to insuring against risk, involves spending more now and spending less in the future (if the product needs repair). A lower real interest rate means that the opportunity cost of spending now has fallen, so the warranty is more attractive.

B-2. T**F**U: An increase in the rate of growth of the money supply will increase the growth of real GDP in the long run.

False. Money is neutral in the long run. An increase in money growth will lead, in long-run equilibrium, to higher inflation.

B-3. **T**FU: Fiscal stimulus will increase the government's budget deficit.

True. Either an increase in government spending or a decrease in taxes will increase the deficit.

B-4. T**F**U: The fact that publishers sell identical textbooks abroad for much less than in the United States suggests that the demand for textbooks abroad is less elastic than in the U.S.

False. Monopolists who can price discriminate will charge a higher price in the market with less elastic demand, so foreign demand must be more elastic than in the U.S.

B-5. **T**FU: In a long-run Schumpeterian equilibrium with technological progress, a typical firm produces where price exceeds marginal and average production cost, but make zero economic profit.

True. The operating profit (P – ATC) that the firm earns equals (on average) its R&C cost.

B-6. **T**FU: More generous unemployment benefits will probably increase the natural rate of unemployment.

True. More generous unemployment benefits lower the private cost of search, leading to longer searches and higher natural unemployment.

Part C: (about 75 minutes) Answer each of the following questions with a short essay response.

C-1. Modern aggregate-supply theory asserts that firms will respond differently to a change in price resulting from an increase in aggregate demand depending on whether the change was anticipated or unanticipated. Use *one of the three* models discussed in class—the wage-contract model, the menu-cost model, or the misperceptions model—to explain why the response to anticipated vs. unanticipated demand shocks would be different and how this difference leads to the conclusion that the SRAS curve slopes upward while the LRAS curve is vertical.

Wage-contract model
Unanticipated: Nominal wage is fixed in contract. AD↑ raises firm's D and MR, but MC does not rise (as much), so q↑.
Anticipated: Nominal wage adjusts upward with prices if ΔAD is known before contract was signed.
Long run: Contracts expire and wage adjusts.

Sticky-price model
Unanticipated: Menu costs prevent some firms from raising prices. They will produce more because their prices are lower.
Anticipated: Menu prices would have anticipated the rise in AD and be higher.
Long run: Menus wear out and prices adjust fully.

Mispercetions model
Unanticipated: Firms see rise in D and MR but not in MC because they have better information about output prices than input prices, so they raise q.
Anticipated: Firms aren't fooled.
Long run: Firms find out about MC and go back to natural output.

C-2. Elmo is a rational consumer. When buying apples and bananas in a competitive market, he chooses to buy 7 apples at $1.50 each and 4 bananas at $2.00 each. What, if anything, can we say about whether Elmo would have higher utility with each of the following commodity bundles than with his current one?

a. 8 apples and 4 bananas

Better off. One more apple with same number of bananas.

b. 6 apples and 5 bananas

Might be better off but can't tell for sure. This bundle would cost $19 and his income is only $18.50, so this is outside his original budget constraint. His 7th apple was worth at least $1.50 and his 4th banana was worth at least $2.00, but we don't know how much the 5th banana would be worth.

c. 8 apples and 3 bananas

Worse off. Elmo could have bought this bundle (costing $18.00) with his income (of $18.50), but chose 7 apples and 4 bananas instead. Therefore he prefers 7A/4B to 8A/3B.

C-3. Suppose that the natural unemployment rate is 6% and that the initial expected rate of inflation is 8%. The economy begins in long-run equilibrium. Show and label on the diagram below:

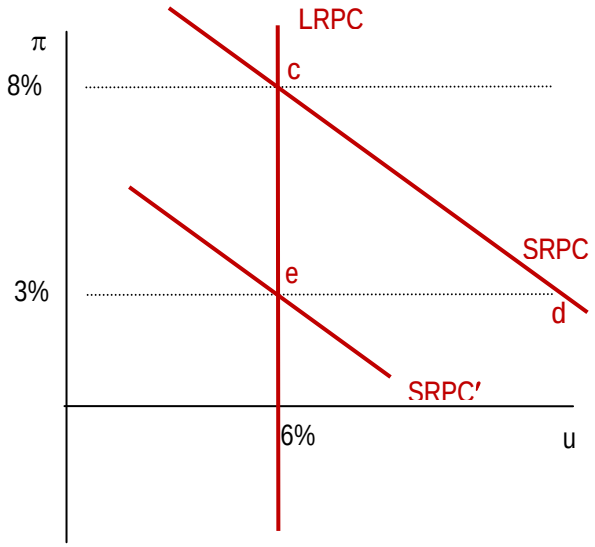
(a) The long-run Phillips curve (LRPC).

(b) The initial position of the short-run Phillips curve (SRPC).

(c) The initial point of equilibrium (*c*).

(d) The short-run equilibrium point (*d*) if the policy authorities reduce inflation to 3% but expectations do not adjust.

(e) The short-run equilibrium point (*e*) that results if the policy authorities reduce inflation to 3% and succeed in lowering inflation expectations at the same time.



Explain the logic behind your answers:

LRPC is vertical at natural rate of unemployment. SRPC intersects LRPC at expected rate of inflation, so initial SRPC goes through u = 6% and π = 8%. Because economy begins in long-run equilibrium, it must be at *c*. If expectations remain at 8%, then economy will initially move along SRPC to point *d*. If expectations fall to 3% then SRPC will shift down to SRPC′ and economy will move directly to *e*, which is the long-run equilibrium in either case.

C-4. Suppose that the whoople industry is perfectly competitive with constant costs and a U-shaped LRAC. Starting from long-run equilibrium, suppose that the market demand for whooples increases. Explain what will happen *in the long run* to (a) the price of whooples, (b) the number of whooples consumed, (c) the number of firms in the whoople industry, and (d) the quantity produced by each whoople firm. Use appropriate diagrams to support your answer and summarize the results in the table at the bottom of the page.

In the short run: Price ↑ due to increased demand, so firms make positive economic profits. New firms enter, shifting short-run supply to the right until profits are gone. Because this is a constant-cost industry, the LRAC curves of existing firms are unaffected by the change in industry output (there are no specialized inputs whose prices are bid up). Thus price must end up back at the original level. Because the LRAC curves are U-shaped, each firm must again be at the (unique) level of output that minimizes AC. Thus,

Variable	Change (+, –, or 0)
Price	0
Number consumed	+
Number of firms	+
Output per firm	0

C-5. The U.S. Congress is expected to pass legislation this month lowering taxes and increasing spending for the year 2011. Fiscal stimulus is often thought to have a "multiplier" effect on aggregate demand, with $10 billion of additional stimulus leading to more than $10 billion of additional spending.

a. Explain why such a multiplier effect may occur.

Increases in spending may lead to increases in output, which raises incomes, which causes consumption to rise, leading to another round of spending increases.

b. Explain how each of these might affect the amount of output expansion resulting in the short run from each dollar of stimulus:

(1) Whether the stimulus is spending or tax reduction, and whose taxes are reduced.

Changes in taxes may have smaller effects because some of the tax reduction will be saved (or used to reduce debt, which is also saving) rather than consumed. Some people have smaller MPCs than others, so the effect will be larger if the tax cut is given to those with large MPCs.

(2) How sensitive real interest rates are to additional government borrowing.

Increases in government borrowing may lower the (net) supply of loanable funds by soaking up lending that would otherwise be available for firms' capital needs. This would raise equilibrium real interest rates. The higher the real interest rate, the less firms will want to spend on capital goods, so if real rates are sensitive to government borrowing, there will be more "crowding out" and less stimulative effect on AD.

(3) How wages respond to increased employment.

Using the wage-contract theory of aggregate-supply, if wages do not go up much when the stimulus causes employment to rise, then firms' costs will not increase and they will probably expand output a lot. If wages rise aggressively, then firms are more likely to raise price more and output less.