Attention: *Graphics and equations should be accompanied with* **short and precise** *comments; it is often the only way to make a difference between a calculation mistake and deficient comprehension. However, comments that have nothing to do with the question will be interpreted as a lack of understanding.*

The exam supervisors are there to supervise, not answer questions. They have been instructed **not** *to answer questions unless they feel that it is absolutely necessary.*

The exam is marked on **25** *points. This questionnaire has* **2** *pages.* GOOD LUCK!

A. **Multiple choice questions: (5 points)**

(1) The velocity of money
    (a) is the speed at which the Central Bank prints new bills and coins.
    (b) is equivalent to the inflation rate.
    (c) is the time it takes for money to go from one bank to another on average.
    (d) is the opportunity cost of holding money.
    (e) represents how fast a dollar bill moves from one person to another on average.

(2) In the short run, economists consider that interest rates are primarily determined by
    (a) the demand and supply of goods and services.
    (b) the equilibrium between saving and investment.
    (c) government spending.
    (d) the demand for liquidities and the supply of money.
    (e) the tax rate.

(3) Which of the following is false?
    (a) In the last 10 years or so, the inflation rate in Canada is considered to be well under control.
    (b) Today, the per-capita income in the USA is about 25% higher than in Canada.
    (c) Since the 2nd World War, West European countries have chronically suffered from a higher unemployment than the USA.
    (d) Japan has suffered from a long recession recently.
    (e) Today, the unemployment rate in Canada is considered too high by most observers.

(4) Compared to the 1950-1970 period, the USA measured GDP has experienced a slowdown in its growth rates from 1974 to today. Which of the following is most probably **not** responsible for that measured slowdown?
  (a) Decreasing returns to research.
  (b) High military spending in the USA.
  (c) Reductions in capital investments.
  (d) Measurement problems concerning quality improvements in goods and services.

(5) A recent report announces that the number of individuals that have abandoned job searches due to discouragement has increased. According to the definitions of unemployment and labor force that we have seen, and assuming that nothing else has changed, this report would imply that
  (a) the unemployment rate has gone down.
  (b) the number of working people has increased.
  (c) the share of the labor force that is unemployed has increased.
  (d) the number of unemployment people has increased.
  (e) None of the above.

B. (10 points) Assume that we have a closed economy and that investment is exogenously set at $I = \bar{I}$. The economy's short run behavior is described by the following system of equations:

(1)
$$Z = C + \bar{I} + G$$

(2)
$$Y = Z$$

(3)
$$C = c_0 + c_1(Y - T)$$

where each variable is defined as seen in class.
  (1) (4 points) Explain, in your own words, what each equation represents. (What does it mean intuitively, no mathematics.)
  (2) (3 points) Define private aggregate saving and show that investment is equal to the sum of private and public saving.
  (3) (3 points) How can it be that a decision to save more out of income can induce a recession? Does it mean that a higher willingness to save is bad for the economy?

C. (10 points) A bond promises to pay $100 in one year.
  (1) (2 points) What is the interest rate on the bond if its price today is $75? $95?
  (2) (3 points) What is the relation between the price of a bond and its interest rate?
  (3) (2 points) If the interest rate is 8%, what is the price of the bond today?
  (4) (3 points) Explain why the Central Bank's monetary policy is usually described in terms of interest rates while in fact it is really controlling the money supply. (No math.)