You have three (3) hours. You MUST show work CLEARLY for calculation problems. Place answers on exam in the space provided with work on attached lined sheets.

A. Multiple Choice (80 pts)

1. **D** The problem of scarcity exists:
   - A. Only in market economies because that is where prices are used to allocate resources.
   - B. At present, but will be eliminated as the economy grows.
   - C. Only when people are not producing at the optimal level.
   - D. Whenever people have to make choices about which use of resources they like better.
   - E. Scarcity exists in all the above conditions.

2. **B** According to the “law” (theory?) of demand:
   - A. People will pay higher prices for things they need but lower prices for things they want.
   - B. As the sacrifice you have to make to obtain a good increases, you will increasingly look for substitutes.
   - C. People will not spend time producing something unless you reward them more than the value of the next best use.
   - D. As technology improves, the price of most products will go up.
   - E. When the government raises the price above equilibrium, there will be a shortage of the good.

3. **E** If the supply of apples shifts to the left, the demand for apples:
   - A. Will decrease as the price rises.
   - B. Will increase because of the higher price.
   - C. Won't change because the price won't change.
   - D. Will increase because the price decreases.
   - E. Won’t change even if the price does change.

4. **B** What do we call the area under the supply curve?
   - A. The value of the good.
   - B. The cost of production.
   - C. The total revenue.
   - D. The consumer surplus.
   - E. The producer surplus.

5. **D** Suppose a country has an army that only hires only volunteers, (instead of drafting or forcing all young men to be in the army), then soldiers will most likely be people:
   - A. Who care mostly about money.
   - B. Who have fewer better opportunities elsewhere.
   - C. Who want to save their country more than they care about money.
   - D. Who are not very good at anything.
   - E. Who are the most patriotic Canadians.

6. **D** Suppose the TRUE demand for a good is lower than what some consumers think the demand is. (i.e. cigarettes for which some consumers lack self-control) Then:
   - A. The market price will make people buy the optimal quantity but the price will be higher than the optimal price.
   - B. The last few units that consumers buy at the market price will have a cost that is lower than the TRUE value.
   - C. The market price for the good will cause some consumers to buy more than the quantity supplied.
   - D. The market price for the good will cause some consumers to buy more than the optimal quantity.
   - E. The market price will cause some consumers to buy less than the optimal quantity.

7. **C** When a good becomes more scarce, its money price usually rises because:
   - A. Most Canadians are committed to capitalism.
   - B. Most people are better off if it does.
   - C. Sellers can benefit themselves by raising their prices when this happens.
   - D. This will allocate scarce goods most efficiently.
   - E. This is what the government always wants.

8. **E** In the diagram at the right, what is the CHANGE in the consumer surplus if the government brings in a price ceiling at Pc?
   - A. ABC
   - B. ABD
   - C. B-E
   - D. -BC
   - E. D-C
9. E  When marginal revenue of the last good sold is more than marginal cost of the last good, the seller is:
   A. Maximizing profit even if profit is negative.  B. Making a loss.
   C. Minimizing the profit (TR-TC)  D. Maximizing profit and making a positive profit.
   E. Is not maximizing profit, but could be making a positive profit.

10. D  Who is most likely to complain that a company is engaging in “predatory pricing”?
   C. Suppliers.  D. Competitors.
   E. Consumers.

11. C  We want to know whether the standard of living in a country has improved in the last year. The best measure of this (assuming no change in the distribution of income) is last year's:
   A. Inflation rate.  B. Nominal growth rate.
   C. Real growth rate.  D. Level of nominal gross domestic product.
   E. Interest rate.

12. A  Last year, although there was no change in the civilian non-institutional population or the number of people working, the unemployment rate rose. What can explain this?
   A. There are more people looking for work who used to be retired.
   B. There are fewer people in the armed forces.  C. There was in increase in "discouraged workers".
   D. The participation rate decreased.  E. More people retired.

13. B  Which of the following transactions will NOT be counted directly when calculating GDP:
   A. The government hires workers for its new office.  B. A pizza store hires workers for its new pizza store.
   C. A Canadian tourist pays for a hotel in Mexico.  D. A consumer pays rent.
   E. A foreign owner buys a new machine (in Canada) for his Canadian store.

14. C  If the percentage change in the deflator is greater than the growth calculated in today's prices then:
   A. The central bank must be keeping the interest rates very low.
   B. This country's deficit and debt must both be increasing.  C. This country is experiencing a recession.
   D. This country is experiencing a growth bubble.  E. This country is experiencing counter-cyclical fiscal policy.

15. B  When interest rates rise,
   A. The value of a coupon bond rises.  B. The value of the coupon bond decreases.
   C. The value of a coupon rises but only if the current interest rate is higher than the coupon rate.
   D. The value of a coupon bond decreases but only if the current interest rate is higher than the coupon rate.
   E. The value of a coupon bond decreases but only if the current interest rate is lower than the coupon rate.

16. D  What is the deficit going to be in 2016 if the debt at the end of 2015 is $4000, the tax revenue is $300, the non-interest expenditures are $850 and the interest rate is 9%?
   A. $110  B. $150
   C. $210  D. $510
   E. $4510

17. A  The difference between M1 and M2 is:
   A. M2 includes savings deposits but M1 doesn't.  B. M1 includes demand deposits but M2 doesn't.
   C. M1 includes near money but M2 doesn't.  D. M1 includes cash but M2 doesn't.
   E. M2 includes demand deposits but M1 doesn't.
18. A. If a central bank wants the economy to slow down, open market operations means:
1. The central bank will be selling government T-bills to the public.
2. The central bank will be printing money to buy government T-bills.
3. The central bank will be printing money to raise interest rates.
4. The government will be buying T-bills from the central bank to lower interest rates.
5. The government will be selling T-bills for a higher price than before.

19. E. Keynesians believe:
A. An increase in the money supply will slow down the economy.
B. Neither fiscal or monetary policy will have much effect on the real economy.
C. The monetary growth rate should be kept steady to avoid shocking the economy.
D. Counter-cyclical fiscal policy is needed to keep the money supply at its optimal growth rate.
E. An increase in the supply of money will encourage private consumers to buy more to buy more houses.

20. E. New Classical economists believe that an increase in government spending:
A. Will encourage other people to spend too as they receive income from the government spending.
B. Will cause the unemployment rate to decrease as more people get jobs.
C. Will actually decrease the deficit because a stimulated economy will earn higher taxes for government.
D. Will lower interest rates and cause the economy to boom.
E. Will 'crowd out' private spending.

B. Calculations (88 pts) SHOW WORK NEATLY IN THE SPACE BELOW OR ON THE ATTACHED PAPER. NO PARTIAL CREDIT WITHOUT SUPPORTING WORK.

1. (40 pts) Demand and Supply. Here is information from Vancouver’s peanut market:

| PRICE PER UNIT: 20 40 60 100 140 etc., |
| QUANTITY DEMANDED: 48 36 24 12 6 etc., |
| QUANTITY SUPPLIED: 10 15 20 34 40 etc., |

a. Find the equation for the demand curve (Qd=f(P)). \( Q_d = 52 - \frac{1}{15} P \)

b. Find the equilibrium price and quantity.
\( P_e = 120 \) \( Q_e = 23 \)

C. What is the producer surplus at equilibrium (in dollars)?
\( \Delta P = 120 - 23 = 97 \)

D. What is the quantity traded if it is illegal to sell peanuts for less than $140?
\( Q = 140 - 40 = 100 \)

E. What is the change in consumer surplus caused by this price floor?
\( \Delta C = \frac{1}{2} (120 - 80) (140 - 100) = 1200 \)

F. What is the Marginal Revenue equation for a price searcher (monopoly)?
\( MR = 260 - 10Q \)

G. What is the quantity that maximizes producer surplus for a price searcher?
\( Q = 25 \)

H. What is the price that maximizes producer surplus for a price searcher?
\( P = 260 - 5(25) = 170 \)

I. What is the (maximum) producer surplus for the price searcher?
\( \Sigma C = \frac{1}{2} (170 - 10) (25) = 2268 \)

J. What is the dead weight loss caused by the price searcher?
\( \Delta \Sigma C = \frac{1}{2} (170 - 10) (25) - 2268 = 50 \)

2. Comparative Advantage (8 pts) Aida can produce 4 xins or 3 yops per day. Belinda can produce 6 xins or 4 yops per day.

Carl can produce 8 xins or 10 yops per day.

a. Of the three, who has the comparative advantage at producing xins?
\( \frac{A}{4} \frac{B}{6} \frac{C}{10} \)

b. If the three decide they must produce 8 xins per day, show how to divide the work among the three to get the most possible yops with the 8 xins (Carefully show what each of the three will be producing). How many yops will this be?

\( \frac{A}{2} \frac{B}{6} \frac{C}{10} \)

\( \frac{1}{1.5} \) yins
3. Comparative Statics (5 pts) In the diagram, draw the new curves and use arrows to show the direction of change. Then circle the best answer for each of the following four statements. (To protect your answer, give a one sentence explanation of the relationship which you think explained the shift below.)

What happens to the market for umbrellas in Vancouver if someone invents a new type of material that makes it much cheaper to make umbrellas.

**DEMAND will SHIFT RIGHT/SHIFT LEFT NO CHANGE**
**SUPPLY will SHIFT RIGHT/SHIFT LEFT NO CHANGE**
**EQUILIBRIUM PRICE will RISE/FALL/UNCERTAIN CHANGE**
**EQUILIBRIUM QUANTITY will RISE/FALL/UNCERTAIN CHANGE**

4. (7 pts) Suppose \( Y_e = 400 + 4(G-T) + 3M_s \), \( G = 320 \), \( T = 380 \), \( M_s = 80 \), \( Y_f = 800 \)
   a. Carefully show where this economy is on a Phillips curve (where Un = 4%)
   b. What should the deficit be if we want the economy to be at full employment?

5. (8 pts) Suppose your economy only has three goods. In 2012 \( P_a = 33, Q_a = 5, P_b = 3, Q_b = 2, P_c = 5, Q_c = 4 \). In 2013 \( P_a = 34, Q_a = 6, P_b = 2, Q_b = 5, P_c = 4, Q_c = 3 \). Assume 2012 is the base year.
   a. Find the real growth rate for 2013.
   b. Find the GDP deflator for 2013.

6. Nominal vs Real (5 pts) What is the real growth rate if the nominal GDP rises by 4.6% when the price deflator rises from 124.6 to 126.2?
   \[
   \frac{1.046}{124.6} = \frac{1.046}{1.013} = 1.033 \quad \text{3.3%}
   \]

6. Interest (4 pts) If today's interest rate is 6% should you pay $500 today for a dishwasher or $600 in 4 years time? Which is better? By how much?
   \[
   P_{t1} = 500 \quad P_{t2} = \frac{600}{(1.06)^4} = 475.26 \quad \text{3.3%}
   \]

7. Money & Interest (11 pts) The market for loanable funds is \( Q_d = 400 - 400r \), \( Q_s = 18 + 200r \). (in billions of dollars)
   a. What is the current interest rate and amount of funds loaned?
   b. What will the price of a $1 million 3-month government T-bill be if this is the interest rate?
   c. (PRINT/EAT) The central bank would like the interest rate to be 4%. Would the central bank have to PRINT MONEY or EAT MONEY to move the interest rate to this new level?
   d. (BUY/SELL) Would the central bank have to BUY government T-bills or SELL government T-bills to move the interest rate to this new level?
   e. How many billions worth of T-bills will the central bank have to buy or sell to move the interest rate to this new level?
C. Two Short Explanations (2 pts) Write a short paragraph (maximum 100 words) for each of the following questions. (Diagrams will help) PLEASE USE ATTACHED LINED SHEETS.

1. What is a surplus and what causes a surplus? Give an illustration and example.

2. How is the labor force calculated? Are all the people in the country counted in it? Why not?

D. TWO ESSAYS (2 pts) Maximum 200 words each. Choose ONLY ONE MICRO topic and ONLY ONE MACRO topic. Diagrams will help. PLEASE USE ATTACHED LINED SHEETS.

MICRO Topics (Choose one):
1. The rest of the world has discovered the good taste of BC blueberries. Although the number of new blueberry farms are growing, the increased international demand keeps raising the price and local consumers complain that they just can’t find enough at a reasonable cost. Would you support a law which requires that blueberry farmers have to satisfy local consumers at a reasonable price before they are allowed to export any of their crop? Why or why not?

2. For many years, consumers could get supplies for home repair at small local hardware stores. But in the last few decades large American chains (Home Depot, Lowe’s) have killed off these Mom and Pop stores. Canadian companies also got big to compete (Rona). Many customers now complain that they don’t like these impersonal large stores and miss the social community created by the smaller Mom and Pop stores. Would you support a law which limits the number of large chain hardware stores in Vancouver, so that the smaller Mom and Pop stores have a chance to stay alive? Why or why not?

MACRO Topics (Choose one):
1. In 2017, Canada’s unemployment rate was 6.3%, but in Vancouver it was only 4.7%. Is this a problem? Would a Keynesian economist give a different answer to this question than a New Classical economist? Explain. Also, what government action would Keynesian and New Classical economists suggest because of these unemployment rates?

2. The Bank of Canada has been warning Canadian consumers that our consumer debt is too high. It says that too many Canadians want to enjoy life before they are earning enough for such a high standard of living. The Bank of Canada is suggesting that too many Canadians are hoping their future income will be high enough to pay back their loans and that this might not come true. However, one expert recently disagreed with the Bank of Canada by publishing an article saying that talk is cheap, that current Bank of Canada policy is encouraging consumers to go deeper into debt and that the Bank of Canada could get Canadians to reduce debt very easily by changing its policy instead of scolding us. What policy does this expert think the Bank of Canada is using and what does this expert think the Bank of Canada should do if it was serious about getting Canadian consumers to reduce their consumer debt? Do you think this expert is correct? Why or why not?