Econ 3143 Macroeconomic Theory II
Assignment 2
(Chapter 15)

(Due: before 10:00 pm, Oct. 21th, 2020. Please submit it through canvas, late assignment will not be accepted to ensure timely posting of answer key)

1. **Multiple Choices.** Choose the one alternative that best completes the statement or answers the question.
10 multiple choice questions will be posted on Canvas later.

2. Label each of the following statement true, false, or uncertain. Explain briefly.

a) Changes in consumption and investment typically move in the same direction and roughly of the same magnitude.
b) Investment depends on expected profits, but consumption only depends on current income.
c) A good indicator of current profit per unit of capital is the ratio of current output to capital
d) Unless current profits affected expected future profits, it should have no impact on investment.

3. Consider a consumption-saving problem of an individual. This individual lives for two periods. In period one, the individual is young, and in period two the individual is old. The preferences are described by the utility function $U(C_1, C_2) = \sqrt{C_1} + \beta\sqrt{C_2}$, where $0 < \beta < 1$ is the discount factor. The individual get endowment Y_1, Y_2 from the Mother Nature in period 1 and 2 respectively. Assume that the discount factor $\beta = \frac{1}{1+r}$ .Suppose this individual can freely borrow and lend on the loans market.

a) Derive the intertemporal optimality condition.
b) Show that C_1, C_2 as a function of Y_1, Y_2 and β. Explain the permanent income hypothesis.

4. Using the method we described in lecture and the information I gave in the lecture notes, calculate your human wealth.

5. Suppose Sophie X will retire at the age of 60 this year with HKD $3 million in her pension account, to keep her living standard, he would like to have a constant real annuity in today's value from now to 87 years' old (life expectancy for women in Hong Kong in 2017). Suppose the annual nominal interest rate will be constant at 5% and the annual inflation rate is 3% per year. Can you calculate the real annuity (in today's value) she can get every year? (Note, we assume that she will start to get annuity at the age of 60).

6. Individual saving and aggregate capital accumulation.
(Question 5 of Chapter 15 in 7th edition)