所別：產業經濟研究所碩士班 產業經濟組(一般生)　科目：總體經濟學　共 2 頁 第 1 頁
本科考試禁用計算器
＊請在試卷答案卷（卡）內作答

(請依題目順序作答，未作答題目請填題號。)

1. (10%) Please briefly describe the expenditure approach and income approach of gross domestic product?

2. (10%) What is the rule of 72? How many years an economy that grows at 4% per annum will double it living standards?

3. (25%) Let $y_t$ denote the (log) real per capita GDP and assume that you and I know underlying data generating process (DGP) for the economy. Imagine further that this DGP is given by:

   $y_{t+1} = \gamma + y_t + e_{t+1}$ where $e_{t+1}$ is a random variable.

   (a) (5%) What is the economic meaning of $e_{t+1}$?

   (b) (10%) Now, suppose we are at date $t$ and wish to estimate the future level of GDP at date $t+N$, where $N$ is some number large enough to be considered the 'long-run'. What is the expected value of $y_{t+N}$?

   (c) (10%) How to interpret the expected value in macroeconomics?

4. (20%) Let $z_t$ denote the stock of 'knowledge capital' available at date $t$, for $t = 1,2,....,\infty$. Output per capita is given by the production function $y_t = z_t f(k_t)$. For simplicity, let us assume a constant population and a constant stock of physical capital and normalize units such that $f(k) = 1$. The economy is populated by two-period-lived overlapping generations, who has preferences defined over sequences of consumption ($c_t(j)$) and leisure ($l$), $U_t = \ln(c_t(1)) + v(l) + \beta \ln(c_{t+1}(2))$ where $0 < \beta < 1$ is an exogenous time-preference parameter and $v$ is an increasing and strictly concave function. Here, $c_t(j)$ represents the consumption of an individual in period $t$ in the $j^{th}$ period of life.

   (a) (10%) What is the marginal rate of substitution between current leisure ($l$) and future consumption ($c_{t+1}$)?

   (b) (10%) What is the marginal rate of substitution between consumption at two different points in time?

5. (35%) Let $T$ be the amount of time (in fractions of a year) between a consumer's trips to the bank to get money. For arbitrary $T$, the consumer makes $1/T$ trips to the bank in a year. Going to the bank takes time and effort, all such expenses are accumulated into some dollar cost $\gamma$. Assume that our consumer spends $Pc$ dollars on consumption each year, where this spending is smooth from day to day. Note that $P$ is the price level. After going to the bank, the consumer's money holdings decline linearly,
   (a) (5%) What are the consumer's average money holdings ($\bar{m}$)?
   (b) (5%) If the annual nominal interest rate is $R$, what is the total annual real costs in foregone interest from the consumer's money holdings?
   (c) (10%) What is the consumer's cost-minimizing choice of the time $T$ between visits to the bank to withdraw money?
   (d) (5%) What are the consumer's average money holdings?
   (e) (5%) Derive and determine the effect of an increase in the interest rate $R$ on the consumer's money demand?
   (f) (5%) Derive and determine the effect of an increase in the consumer's consumption $c$ on the consumer's money demand?

注意：背面有試題