個體經濟學（國際企業所）
應以原子筆或鋼筆作答，可以中文、英文或中英合併之方式回答。
每題所佔之百分比皆附註於題後。（共十五分）

1. Suppose that a monopoly can produce any level of output it wishes at a constant marginal (and average) cost of $5 per unit. Assume that the monopoly sells its goods in two different markets that are separated by some distance. The demand curve in the first market is given by

   \[ Q_1 = 75 - p_1 \]

   and the demand curve in the second market is given by

   \[ Q_2 = 90 - 2p_2 \] 

   (1) If the monopolist can maintain the separation between the two markets, what level of output should be produced in each market, and what price will prevail in each market? What are total profits in this situation? (5%)

   (2) How would your answer change if it only cost demanders $6 to transport goods between the two markets? What would be the monopolist's new profit level in this situation? (10%)

   (3) How would your answer change if transportation costs were zero and the firm was forced to follow a single-price policy? (5%)

2. Suppose your cost function is given by

   \[ c = 0.04y^2 - 0.9y^2 + (11 - k)y + 5k \]

   where \( c \) is cost, \( y \) is output and \( k \) is the amount of the fixed input in the short run. Input prices are assumed to be fixed.

   (1) Derive the expressions for the long-run average and marginal costs as functions of output. (5%)

   (2) Illustrate by algebra that short-run average cost and long-run average cost are tangent to each other only when \( k \) is chosen optimally. (5%)

3. Suppose the utility function for goods \( X \) and \( Y \) is given by

   \[ U = U(X, Y) = XY + Y \]

   (1) Calculate the uncompensated demand functions for \( X \) and \( Y \) and describe how the demand curves for \( X \) and \( Y \) are shifted by changes in income or in the price of the other good. (10%)

   (2) Calculate the expenditure function for \( X \) and \( Y \). (5%)

   (3) Use the expenditure function calculated in part (2) to compute the compensated demand functions for \( X \) and \( Y \). (5%)
MACROECONOMICS

注意事项
1. 請用黑色或藍色原子筆或鋼筆作答，可用中英或中文合併方式作答。
2. 在每一問題下方有得記點數，滿一分代表一分鐘時間作答，例如：3%指該問題的三分鐘作答。
3. 請在試卷上標明題的選項編號。

Part I: MULTIPLE CHOICE (10%, 2% each)

1. The turning points occur at which stages of the business cycle?
   (a) recovery and recession
   (b) peak and recovery
   (c) recovery and trough
   (d) trough and recession
   (e) peak and recession

2. Consider the following information on consumer price index (CPI) and income for Mr. Chen

<table>
<thead>
<tr>
<th>Year</th>
<th>CPI</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>100</td>
<td>$5,000</td>
</tr>
<tr>
<td>1995</td>
<td>150</td>
<td>$7,500</td>
</tr>
</tbody>
</table>

From this data between 1990 and 1995, Mr. Chen’s real income
   (a) increased by $2,500, or 50%
   (b) increased by $1,500, or 30%
   (c) decreased by $1,000, or 20%
   (d) remained constant
   (e) decreased by $2,500, or 20%

3. If the central bank buys bonds on the open market, the commercial banks will experience
   (a) increased loans and decreased reserves
   (b) increased reserves
   (c) increased loans
   (d) decreased reserves
   (e) decreased demand deposits
   (f) none of the above

4. Monetarists argue that the demand for money
   (a) is increased by an increase in real GDP
   (b) is inversely related to the market rate of interest
   (c) is increased by an increase in the price level
   (d) all of the above
   (e) both (b) and (c) above
   (f) both (a) and (b) above

5. An increase in the legal reserve ratio, other things being equal, would have the following effect:
   (a) bank deposit multiplier declines
   (b) bank deposit multiplier rises
   (c) import tariff rates decline
   (d) import tariff rates rise
   (e) none of the above
PART II: MACROECONOMIC STATISTICS AND POLICY

6. Taiwan's national account and other statistics data for 1994 are as follows:

<table>
<thead>
<tr>
<th></th>
<th>At Current Prices</th>
<th>At 1991 Prices</th>
<th>Deflator (One decimal Point)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(NT$ Billion)</td>
<td>(NT$ Billion)</td>
<td>(1991=100.0)</td>
</tr>
<tr>
<td>GDP</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>GNP</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Net factor income from the rest of the world (net factor services)</td>
<td>70</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Government current revenue</td>
<td>1462</td>
<td>1314*</td>
<td></td>
</tr>
<tr>
<td>Government current expenditure</td>
<td>1163</td>
<td>1060*</td>
<td></td>
</tr>
<tr>
<td>Private consumption</td>
<td>3761</td>
<td>3359</td>
<td></td>
</tr>
<tr>
<td>Government consumption</td>
<td>959</td>
<td>869</td>
<td></td>
</tr>
<tr>
<td>Gross fixed capital formation</td>
<td>1444</td>
<td>1412</td>
<td></td>
</tr>
<tr>
<td>Increase in inventory</td>
<td>5</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Gross capital formation (GCF)</td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Exports of goods and non-factor services (X)</td>
<td>2827</td>
<td>2739</td>
<td></td>
</tr>
<tr>
<td>Imports of goods and non-factor services (M)</td>
<td>2704</td>
<td>2617</td>
<td></td>
</tr>
<tr>
<td>Unrequited net transfers</td>
<td>-36</td>
<td>-33*</td>
<td></td>
</tr>
<tr>
<td>Long term net capital flows net</td>
<td>-28</td>
<td>-26*</td>
<td></td>
</tr>
<tr>
<td>Short-term capital and others</td>
<td>-65**</td>
<td>-39*</td>
<td></td>
</tr>
<tr>
<td>Change in foreign assets of the banking system</td>
<td>-124</td>
<td>-113*</td>
<td></td>
</tr>
</tbody>
</table>

Note: * Deflated by GDP deflator  ** Residual

(a) Use only the relevant data listed above, calculate the figures in the parentheses marked by √ (GDP, GNP, GDP and GNP deflator, and GCF). Show the calculations. (10%)

(b) Calculate current account balance (in NT$ billion at current prices). Show the calculations (2%).

7. In a simple macroeconomic model for a small open economy Greeland,

\[ Y = C + I + X - M \]

\[ C = 0.8 \times Y \]

\[ M = 0.2 \times Y \]

Where \( Y = GDP \), \( C = \) total consumption, \( I = \) total investment, \( X = \) exports of goods and services

The 1995 data are given. Ignoring inflation, suppose both \( I \) and \( X \) are projected to grow at 10% in 1996.
(a) Calculate your projected figures and growth rates for 1996 as marked by ✓ and shown in the following table. Show the calculations. (10%) 

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>1996</th>
<th>Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>425</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>C</td>
<td>340</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>I</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>X</td>
<td>70</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>M</td>
<td>35</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

(b) If the country’s international reserves in 1995 is 28.33, which is equivalent to 4 months of total import (M). In 1996, the central bank decides that the international reserves should be equivalent to 3 months of total import, how much international reserve should be maintained in 1996. Show the calculations and briefly explain its implications. (5%) 

(c) What is the impact to the trade balance (X-M) and GDP, if I grows at 15% and X remains at 10% growth? Show your calculations. (5%) Show relationship among investment, domestic saving (defined as Y-C) and foreign saving (defined as M-X). Show the calculation and briefly explain its implications. (5%) 

8. Briefly define the following terms, select only TWO of them: (4% each, total 8%) 

(a) Automatic stabilizer

(b) Phillips Curve

(c) Purchasing-power parity theory

(d) Clean floating and dirty floating system in foreign exchange markets

(End of Questions)