I. Multiple Choice: (50%)

(1) The table sets out Sonya's total utility from playing golf or tennis. If the price of tennis is $5 per hour and the price of golf is $10 per hour, then

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Total utility from tennis</th>
<th>Total utility from golf</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

(A) Sonya will spend twice as much time playing tennis as golf.
(B) Sonya will spend twice as much time playing golf as tennis.
(C) Sonya will spend more time playing tennis than golf.
(D) Sonya will spend more time playing golf than tennis.

(2) If a profit-maximizing firm's marginal revenue is less than its marginal cost, the firm
(A) must be experiencing economic losses.
(B) must be making economic profits.
(C) should increase its output.
(D) should decrease its output.

(3) A monopolist has no supply curve because
(A) as demand changes, each output can be consistent with more than one profit-maximizing price.
(B) monopolists tend to restrict output.
(C) monopolists have no marginal cost curve.
(D) as demand changes, the firm's profit-maximizing choice of output may change.

(4) Consider the following payoff matrix:

<table>
<thead>
<tr>
<th></th>
<th>Firm B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>25,21</td>
</tr>
<tr>
<td>Not enter</td>
<td>22,23</td>
</tr>
</tbody>
</table>

The first number in each cell refers to Firm A's payoff. If each firm follows a dominant strategy, which outcome will result?
(A) 25,21  (B) 31,15  (C) 22,23  (D) 25,17

(5) The CPI in a certain year is 125. Given this information, what do we know about the inflation rate?
(A) It has increased since the previous year by 25 percent.
(B) It has increased since the previous year, but we cannot tell by how much.
(C) It has increased at an increasing rate.
(D) Prices are 25 percent higher than the base year.

(6) If a loan of $10,000 pays $525 per year in interest and the inflation rate is 3 percent, the nominal rate of interest on the loan is
(A) 8.25%  (B) 5.25%  (C) 3%  (D) 2.25%
(7) If the number of dollars you receive every year is the same, but prices are rising, then your nominal income
(A) rises and real income rises.
(B) rises but real income falls.
(C) falls but real income rises.
(D) stays the same but real income falls.

(8) As a general rule, the change in the equilibrium level of national income that results from a given change in the level of investment will be larger the
(A) larger the marginal propensity to save.
(B) smaller the initial level of national income.
(C) larger the marginal propensity to consume.
(D) larger the initial level of aggregate expenditures.

(9) The severity of the crowding-out effect will be reduced if
(A) the Fed increases the money supply at the same time the federal government increase government spending.
(B) the Fed decreases the money supply at the same time the federal government increase government spending.
(C) the Fed does not change the money supply when the government increase government spending.
(D) business firms become pessimistic about the future.

(10) Which of the following statements is correct?
(A) The steeper the IS curve, the more effective the monetary policy.
(B) The steeper the IS curve, the more effective the fiscal policy.
(C) A fiscal expansion will cause smaller crowding out effect when the IS curve is flatter.
(D) A fiscal expansion will cause smaller crowding out effect when the LM curve is steeper.

II. Problems: (50%)
1. Given the following data, consider a closed economy.

\[ Y = C + I + G \]
\[ Y = C + S + T \]
\[ C = 100 + 0.8Y_d \]
\[ I = 500 \]
\[ G = 800 \]
\[ Y_d = Y - T \]
\[ T = 50 + 0.25Y \]
\[ Y_f = 4,000 \]

Whereas C: consumption, \( Y_d \): disposable income, I: investment, G: government purchase of goods and services, T: tax and \( Y_f \): full employment level of output.

(1) What is the equilibrium level of output? (5%)
(2) Is there any problem in this economy? What is it? (10%)
(3) If the government is taking a fiscal policy to solve the problem, what do you recommend the government to do (how and by how much)? (20%)

2. Consider the Cournot duopoly with demand given by \( P = Q + 30 \), and where firm 1 has the cost function \( C_1(q_1) = 5q_1 + 10 \) and firm 2 has \( C_2(q_2) = 10q_2 + 10 \).

(1) Find the Cournot equilibrium \( q^* = (q_1^*, q_2^*) \). (10%)
(2) Find the market price \( p^* \) in the Cournot equilibrium. (5%)