

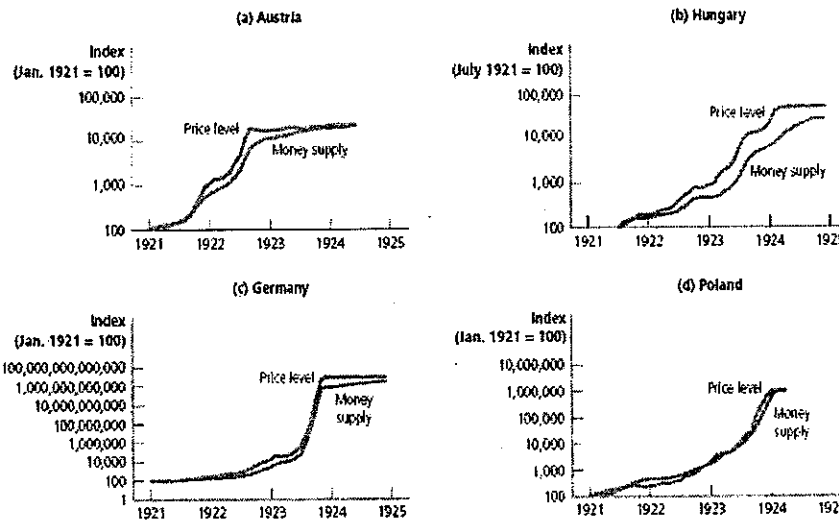
※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

**The 2016 Entrance Examination for Institute of Telecommunications Management**

The exam has 20 questions in blank and each question is 5 points. There are 100 points in total.

**Problem 1.**

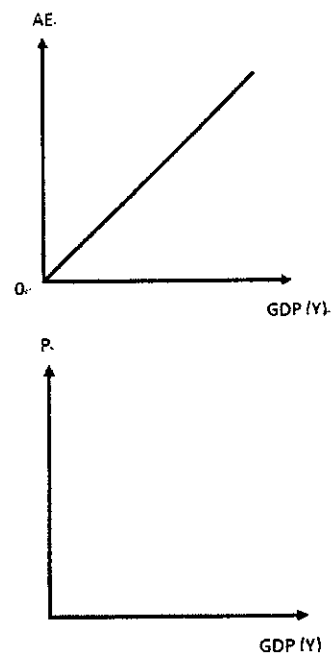
This figure shows the quantity of money and the price level during four hyperinflations.



- (a) Use the quantity theory of money to explain the movement between the quantity of money and the price level. \_\_\_\_\_
- (b) What is the primary cause of inflations? \_\_\_\_\_
- (c) What is a hyperinflation? Define it. \_\_\_\_\_

**Problem 2**

The 311 earthquake and tsunami seriously hit Japan. Use the two graphs of aggregate expenditure (AE) and aggregate demand-aggregate supply (AD-AS) model with words to explain the following questions.



- (a) Determine the short-run effects on output of Japan's economy assuming that there is deflation and that there is no crowding effect. \_\_\_\_\_
- (b) Determine how Japan's government should do to stabilize output. \_\_\_\_\_
- (c) Similarly as part (b), determine three possible methods that can be adopted to adjust the money supply and the interest rate. \_\_\_\_\_

**Problem 3.**

The New York Times cost \$0.15 in 1970 and \$0.75 in 2000. The average wage in manufacturing was \$3.23 per hour in 1970 and \$14.32 in 2000.

- By what percentage did the prices of a newspaper and the wage rise, respectively? \_\_\_\_\_
- In each year, how many minutes does a worker have to work to earn enough to buy a newspaper? \_\_\_\_\_
- Did workers' purchasing power in terms of newspapers rise or fall? \_\_\_\_\_

**Problem 4.**

In a perfectly competitive market of milk, the price of milk per gallon is \$6. The number of gallons of milk the Vaca Family Dairy Farm produces and the farm's total cost are in the following table. Show your answers in words and graphs.

Gallons of milk	Total cost
0	\$3
1	\$5
2	\$8
3	\$12
4	\$17
5	\$23
6	\$30
7	\$38
8	\$47

- What is the supply curve of Vaca Family Dairy Farm? Draw it on a graph. \_\_\_\_\_
- What is the profit-maximizing output? \_\_\_\_\_
- What is its profit? \_\_\_\_\_
- Is this market efficient? Explain why? \_\_\_\_\_

**Problem 5.**

The utility of a consumer is given by  $Utility = U(X, Y) = X^{0.5}Y^{0.5}$ .

- Calculate the uncompensated (Marshallian) demand functions for  $X =$  \_\_\_\_\_ and  $Y =$  \_\_\_\_\_.
- Compute the indirect utility function \_\_\_\_\_ and the expenditure function \_\_\_\_\_ for this case.

## Problem 6.

The conductor of an orchestra in the Soviet Union (during the Stalin era) was traveling by train to his next engagement and was looking over the score of the music he was to conduct that night. Two KGB officers saw what he was reading and, thinking that the musical notation was some secret code, arrested him as a spy. He protested that it was only Tchaikovsky's Violin Concerto, but to no avail. On the second day of his imprisonment, the interrogator walked in smugly and said, "You had better tell us all. We have caught your friend Tchaikovsky, and he is already talking."

So begins one telling of the prisoners' dilemma, perhaps the best-known strategic game. Let us develop the story to its logical conclusion. Suppose the KGB has actually arrested someone whose only offense is that he is called Tchaikovsky, and are separately subjecting him to the same kind of interrogation. If the two innocents withstand this treatment, each will be sentenced to 3 years' imprisonment. If the conductor makes a false confession that implicates the unknown "collaborator," while Tchaikovsky holds out, then the conductor will get away with 1 year (and the KGB's gratitude), while Tchaikovsky gets the harsh sentence of 25 years for his recalcitrance. Of course, the tables will be turned if the conductor stands firm while Tchaikovsky gives in and implicates him. If both confess, then both will receive the standard sentence of 10 years.

- Describe this game in terms of its players, strategies, and payoffs. \_\_\_\_\_
- Construct the payoff matrix. \_\_\_\_\_
- Is both players standing firm Nash equilibrium? If not, explain how to derive the best strategy of each player. \_\_\_\_\_  
What is the profit of each player? \_\_\_\_\_