

※ 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 Transportation and Communications Management

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

Problem 1

Suppose that the monetary base in an economy is \$100 billion and currency drain ratio is 5%. People deposit 80% of currency in saving deposit with the required reserve ratio $R_1=10\%$ and deposit the rest of currency in time deposit with $R_2=5\%$. Money is created through the process of deposit and loan in the banking system. Explain the process of money creation. _____ Calculate the money supply $M=$ _____ and monetary multiplier $M/B=$ _____ of this banking system.

Problem 2.

An economy is operating with output \$408 billion below its natural rate, and fiscal policymakers want to close this recessionary gap. The central bank agrees to adjust the money supply to hold the interest rate constant, so there is no crowding out. The marginal propensity to consume is 0.9, the marginal propensity to import is 0.1, and the tax rate is 0.05. The price level is completely fixed in the short run. In what direction and by how much would government spending need to change to close the recessionary gap? _____ Explain your thinking in the AE graph and in words. _____

Problem 3.

In Conrad's Coffee Shop, the number of cups of coffee that Conrad might produce, ranging from 0 to 10 cups per hours, and total cost of producing coffee are in the following table.

Cups of coffee per hour	Total cost
0	\$3
1	\$3.3
2	\$3.8
3	\$4.5
4	\$5.4
5	\$6.5
6	\$7.8
7	\$9.3
8	\$11
9	\$12.9
10	\$15

- a. Write down and draw total cost (TC), total fixed cost (TFC), and total variable cost (TVC). _____
- b. Write down and draw average cost (AC), average fixed cost (AFC), average variable cost (AVC), and marginal cost (MC). _____
- c. Explain the relationship between AC and MC. _____

Problem 4.

Consider a town with a single producer of water. Its average cost is \$2. The following table is monopolist's demand schedule. Show your answers in words and graphs.

Quantit y of water	Price
0	\$11
1	\$10
2	\$9
3	\$8
4	\$7
5	\$6
6	\$5
7	\$4
8	\$3

- a. What is monopoly supply curve? _____
- b. What are monopoly output and price? $Q^M =$ _____ and $P^M =$ _____
- c. What is monopoly profit? $\pi^M =$ _____
- d. Is this market efficient? Explain why? _____

Problem 5.

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

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

Problem 6.

Netscape and Microsoft each develop their own versions of an amazing new Web browser that allows advertisers to target consumers with great precision. Also, the new browser is easier and more fun to use than existing browsers. Each firm is trying to decide whether to sell the browser for \$30 or to give it away free. Giving the browser away gets more people using it and brings in more advertising revenue, but selling it brings in a lot of revenue also. If one firm gives the browser away, the other firm will not be able to sell any because the two browsers have exactly the same features. In this event, the firm that tries to sell the browser will lose the development cost, which is \$1 billion, and the firm that gives the browser away free will obtain \$4 billion. If both firms sell the browser, each firm will obtain \$3 billion. If both firms give the browser away free, each firm will obtain \$2 billion.

- a. Describe this game in terms of its players, strategies, and payoffs. _____
- b. Construct the payoff matrix. _____
- c. Is both firms selling the browser Nash equilibrium? If not, explain how to derive the best strategy of each firm. _____
- What is the profit of each firm? _____